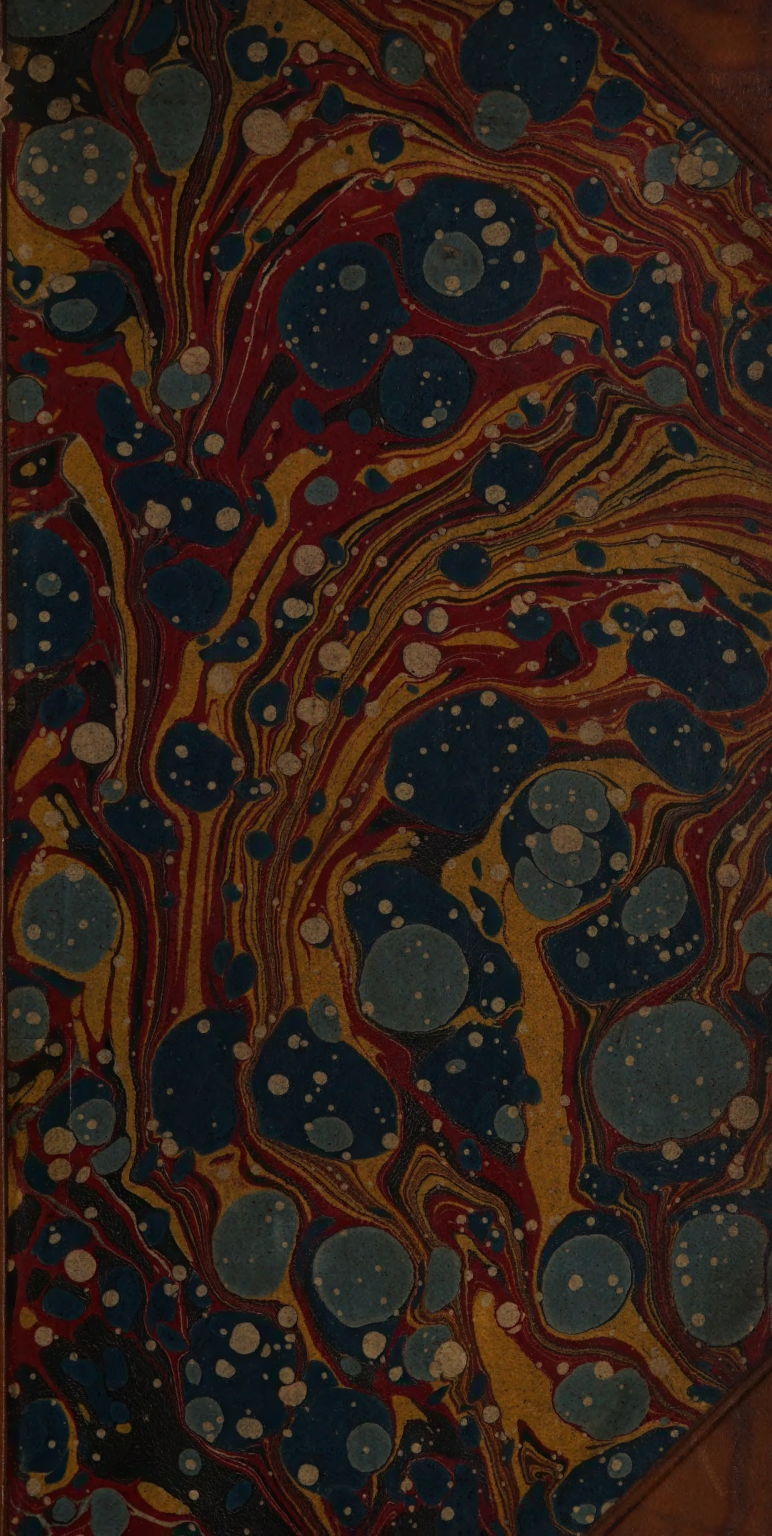
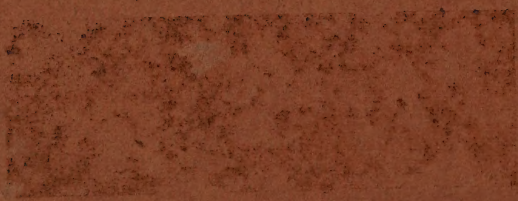


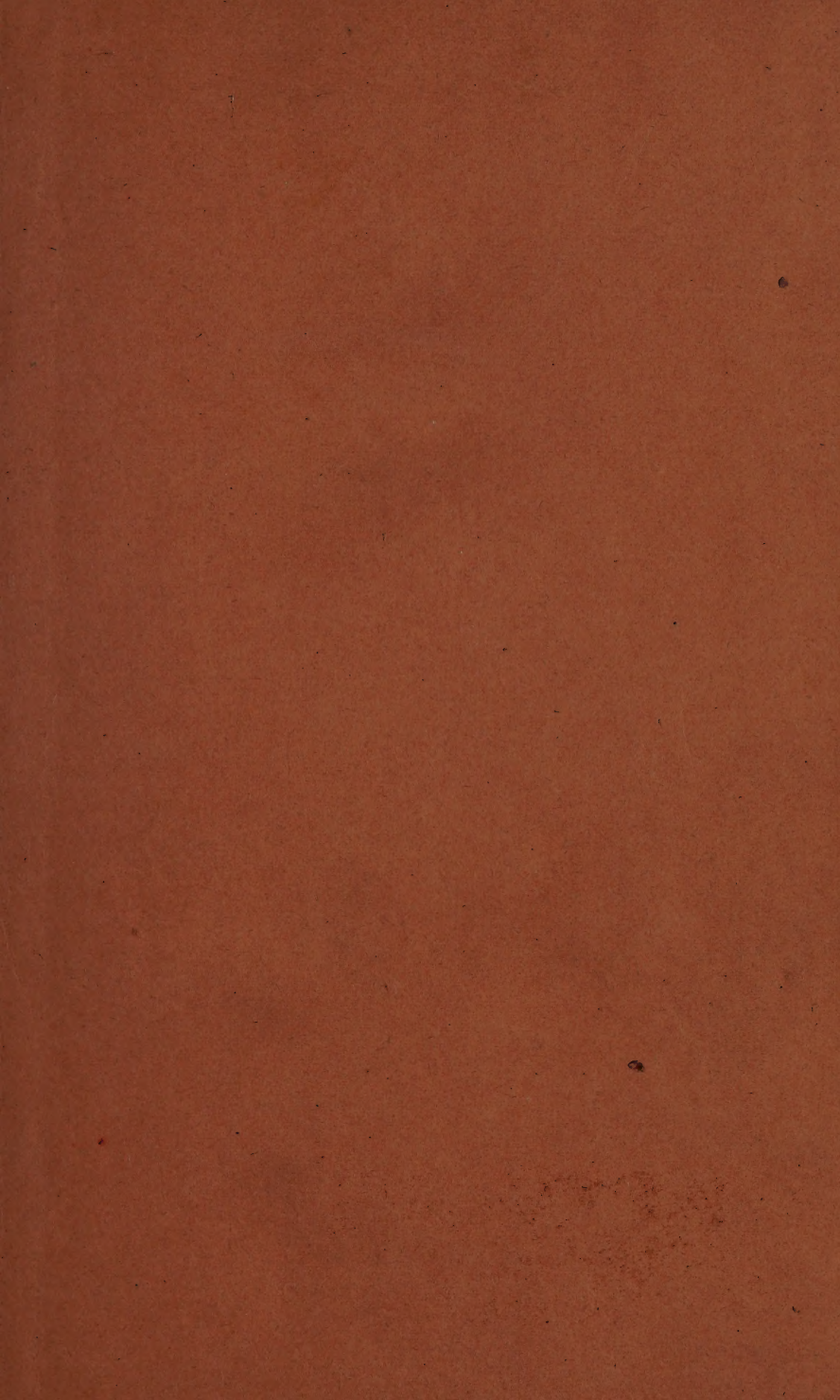
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CLINICAL ILLUSTRATIONS

OF THE MORE IMPORTANT

DISEASES OF BENGAL,

WITH

THE RESULT OF AN INQUIRY

INTO

THEIR PATHOLOGY AND TREATMENT.



BY

WILLIAM TWINING,

*Member of the Royal College of Surgeons of London: First Assistant
Surgeon, General Hospital, Calcutta.*



“Nihilque uspiam proposuisse nisi quod probe exploratum habeam.”

SYDENHAM.

*includes
Cholera*

SECOND EDITION.

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CLINICAL ILLUSTRATIONS

OF THE MOST IMPORTANT

DISEASES OF INDIA

THESE ILLUSTRATIONS

SIR CHARLES T. METCALFE, BART.
THEIR PATRONAGE AND TREATMENT.

GOVERNOR GENERAL OF INDIA

WILLIAM GOSWAM

Member of the Royal Society of London, and of the Royal Society of Medicine, London.

THIS WORK

IS MOST RESPECTFULLY RECOMMENDED.

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IS MOST RESPECTFULLY INSCRIBED.

PREFACE.

THIS work was undertaken for the purpose of placing within the reach of medical men, on their first arrival in this country, a practical account of the diseases of the climate; and of affording a record of facts, which might be useful, by assisting them to form a correct opinion of those maladies which are most common, and most fatal in India. The period allowed for the residence of medical officers of the Honorable Company's Service, at the General Hospital, for the purpose of studying the diseases of this climate, on their first arrival in Bengal, is too short to give them the advantage of much experience; and the season of the year at which the greater number of them arrive here, namely the cold season, is that in which they can seldom have opportunities of observing the most formidable diseases which frequently prevail here at other seasons. Hence, it is the more requisite that a work of reference should be furnished, which may be available for all persons, but which is more particularly

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desirable, as, from the emergencies of the service Assistant Surgeons are frequently required to proceed to remote stations soon after their arrival in India ; to act in the most emergent cases on their own responsibility, and to have the sole management of diseases of the nature of which they have had no previous experience ; and in the treatment of which, the practice of medicine by the unskilled, is little less than the practice of destruction. These observations will not be considered as any imputation on the talents and acquirements of the medical officers who are sent out in the Honorable Company's Service, as it is well known that they are in general men of superior professional acquirements, and many of them have attained the highest medical honors. In fact, the necessity of a comprehensive work of easy reference, has been almost invariably pointed out by those medical men themselves, who have attended at the General Hospital, since my appointment to this institution ; and such a publication has always been most urgently claimed by those whose professional attainments were of the highest order.

The sentiments of the late Dr. Gibb, when he was a member of the Medical Board of Bengal, were repeatedly expressed to me, in terms little short of

a command, on the necessity of drawing up a comprehensive practical treatise of this sort ; and subsequently, Mr. A. Ogilvy, when he was at the head of the Medical Department of this Presidency, pressed the subject on my attention with much earnestness, and just before leaving this country, handed me the following written injunction to proceed with the work :

“ MY DEAR SIR,

“ I cannot leave this country and retire from the Medical Service without earnestly pressing on your consideration, a subject of much importance, namely, that you undertake the publication of Clinical Observations on the Diseases of Bengal. I impose this task on you for several reasons, but chiefly because it is seldom that those Medical Men who have had the most extensive and varied opportunities of acquiring professional knowledge and experience prior to coming to Bengal, have also the good fortune of remaining fixed at the General Hospital for a sufficient length of time to carry on a series of investigations on the peculiarities of the diseases which depend on this climate. It is still more rare to find in Europeans a constitution so firm and equal to follow up laborious occupations and professional inquiries in Bengal, to the extent that you have done : for I believe you have never been absent from duty one day since your arrival in India. I avail myself of this day, which terminates my period of

service as head of the Medical Department, to express a wish that you would undertake to extend and perpetuate the advantages of your experience at the General Hospital, so as to make it available to the purposes of those recently arriving in this country, by publishing a Clinical Account of the Diseases most common in Bengal: it need not contain much theory, or extensive reference to authors; but there would be an advantage in your noticing in the Preface the recent works on Tropical Diseases, pointing out candidly how much of their precepts may be adopted and relied on in this climate; for too many of those who have published on these subjects, have never been in Bengal, so as to possess any knowledge in their own right of the diseases which they attempt to describe, and of course their instructions must be received with caution. I should consider this part of your work properly executed, if it were done with that moderation in language which ought not to place you on any other than a friendly footing with the authors whose works you criticise and disapprove; at the same time that unsupported and untenable doctrines, as well as practical errors, should be decidedly exposed, and distinctly pointed out.

This work ought not to withdraw you from the Medical Society, the proceedings of which have already done much good, and afford an opportunity for the investigation of difficult and important points in pathology and therapeutics, the detailed evidence of which is requisite to be discussed

at its meetings. It is a Society highly honorable to all those who belong to it, and much benefit will assuredly attend its future progress.

"I regret it is not in my power to offer any reward for the labor I now propose to you, except the pleasure which a benevolent mind derives from doing that which promises to be beneficial to mankind.

"I remain, with best wishes,

"Your's very sincerely,

"A. OGILVY."

"*Calcutta, 20th January, 1831.*"

This communication was not inserted in the Introduction to the first edition, because I felt not altogether satisfied that the work exactly fulfilled the views and wishes above expressed; and even now I have avoided entering into any general criticism on the works of others who may have taken up the same subject.

The revisal of the matter for the second edition, has enabled me to enlarge this work, by the addition of more extensive pathological research which appeared to me important, on the various subjects which are treated in the following pages; and to render the practical instructions in many parts more complete. I have also freely availed myself of the

valuable suggestions and friendly criticism of many of the most eminent and experienced practical men among my professional brethren at the three Presidencies, whose aid has been in many instances duly acknowledged in the course of this work; while, I have been precluded from mentioning the assistance derived from others, to whom I feel equally grateful.

Much care has been taken to render the work more precise and more comprehensive in many respects, and to correct the errors incidental to a first edition, published under the disadvantage of various laborious occupations pressing on me, which are well known to my friends here. At the same time, I have the gratification of being assured by many members of the profession in various parts of India, that the work has been useful. The Committee of Public Instruction have also done me the honor of ordering those parts of the first Edition relative to the diseases of Asiatics, to be translated into the native languages; and the present Members of the Medical Board, J. Langstaff, Esq. and Dr. J. Swiney, have given me every encouragement to go on with the succession of investigations requisite to render the work more complete.

In the following work, I have endeavoured to comprise a series of observations on the more important diseases of Bengal ; and have wished to make it a record of facts, which might be useful, principally on account of the detail it contains of the daily progress of some of the diseases which are most common in this country. I claim no merit for the undertaking, except the patient industry requisite to accomplish an examination of the nature of the diseases on which it treats ; and to ascertain the most appropriate methods of cure. I have endeavoured to add to our knowledge of these diseases, by a diligent observation of the phenomena attendant on their origin, progress, and termination ; with the strictest attention to the effects of the several remedies employed ; and in fatal cases, by a careful post-mortem examination of the ulterior changes that are produced by disease.

The importance of ascertaining the early symptoms by which the insidious approach of internal disease may be known, is strongly felt by every one in this country, where the habitual relaxation of the whole system, and probably the more especial relaxation of the cutaneous capillary vessels, prevent that degree of arterial re-action which usually attends

corresponding affections in cold climates, and for this or some other reason, we find, in many cases, dangerous local diseases gradually creep on unobserved, to a most dangerous extent. At a large Hospital, opportunities are occasionally found, of ascertaining by dissection the state of internal organs at the commencement of several important disorders, which usually prove fatal only at a remote stage, and when the actual visceral disorganisation bears no resemblance to the condition of the same organs at an earlier period of the disease. Thus, sudden deaths from Cholera have afforded me opportunities of observing the condition of internal organs at the early stage of some diseases, in which the patients either recover after a long period, or die from abscess, or other extensive disorganisation. The inspection of subjects, in which sudden death occurred during an incipient disease, the earliest symptoms of which were known : has enabled me to state with confidence the importance of observing any morbid tension of the right rectus abdominis muscle, and marking it as one of the early symptoms of that deep seated visceral disorder which often terminates in central abscess of the right lobe of the liver. The state of vascular engorgement and serous infiltration into the cellular

structure, as well as ecchymosis at the root of the mesentery and mesocolon, and near the bodies of the lumbar vertebræ; more especially behind that portion of the peritoneum which is spread over, and binds down the duodenum; have also been ascertained to exist in many cases, as attendants on the early stage of fever.

Some interesting observations may be made, on the post-mortem examination of subjects where we know the person was cured of acute disease at a former but remote period, by active and persevering treatment; especially where the whole history of the case has been recorded. For then the traces which remain of former disorder often enable us to form a precise judgment of the actual extent of the disease which has been subdued, and thus to arrive at a correct estimate of the confidence justly due to the mode of treatment that had been adopted.

In following these pursuits, we must not forget that morbid anatomy only affords useful information, when the appearances observed, are compared with the symptoms which formerly existed; as the actual morbid condition during life, and even that condition which had been chiefly instrumental in the destruction of life, is

often evanescent, so that we find but slight traces of it on dissection. For example, when patients die with the skin in the highest degree of redness from variola or scarlatina, or when an erysipelas over the whole of a limb has existed in the most intense degree, up to the moment of death, the trace left six hours after dissolution, is very different from that which existed during life. When a man has died from any disease attended with severe inflammation of the eyes, but little of those appearances which indicated its acute character remain after death. On the other hand, venous congestion of blood, in parts, of loose and soft texture, and the gravitation of blood, which is liable to take place at the last moments of life, as well as after death, and some other appearances, are liable to be mistaken for inflammation. These considerations would make us cautious in estimating, by the apparent changes observed after death, what might have been the actual condition of the brain or other viscera, in the course of fevers, and some acute diseases.

Among the advantages which I have enjoyed at this institution, for acquiring a correct view of the diseases of the climate, may be enumerated, the free daily intercourse, on professional subjects, with Dr.

W. Russell, during several years, while he was Chief Medical Officer of the Hospital. This acknowledgment is more especially due for that courtesy which enabled me to profit by the practice of the Hospital, at a time when I had no positive right to that advantage, and for the readiness with which the results of his extensive experience were imparted. Nor should I speak with less estimation of the benefit derived from a similar intercourse with his successor, John Turner, Esq. whose anxiety to facilitate and promote every useful pathological inquiry, and to apply the strictest results arising therefrom directly to practice, afforded me the highest satisfaction.

A large number of the cases adduced in the following pages, are those of Hospital patients; and I have no doubt, they will be recognised by the medical gentlemen who were attending the practice of the Hospital at the time. In the course of this work, the directions appear in English, under the Latin prescriptions; which is the custom followed here, in the Hospital diaries, for the purpose of preventing mistakes in the administration of the medicines by the young apprentices. It has not been thought important to make any alteration in this respect,

and I am reconciled to the plan, from finding that a similar proceeding is recommended by Dr. Elliotson in his lectures.

In those instances where the treatment advised in this work, is different from that ordered by authors on the diseases of tropical climates, I have proceeded with great caution, and on grounds of the most ample evidence, afforded by my own practice ; for the support of which I have relied on the proofs of its utility rather than on theory : and I am happy to find those proofs substantiated by the testimony of my professional brethren in this country. Referring to Dysentery, and the efficacy of Ipecacuanha, with active depletion, aided by the strictest attention to a regulated diet ; I may mention that the plan of treatment is confirmed by the practice of Mr. Geddes, Surgeon of the Madras European Regiment, who is well known as the author of a scientific work on the Seringapatam Fever. He states that the employment of Ipecacuanha with the usual adjuvants, generally precludes the necessity of having recourse to mercury in Dysentery. Dr. Mortimer, of Fort St. George, is very much of the same opinion ; and the experience of Dr. Baikie, of the Madras Service, is equally satisfactory. In fact, Ipeca-

cuanha has been a favourite remedy with some of the medical men at the Madras Presidency. Mr. Egerton has employed this plan of treating Dysentery, at the Hospital of the Orphan School ; and his statement of its efficacy, corroborates the accounts I have received from Dr. French of H. M. Service, who was formerly employed at Bombay ; as well as from Medical Officers belonging to the Bombay Service : so that there are sufficient grounds for speaking favourably of the utility of the mode of treatment advised in this work. Those who allow their patients' bellies to be filled with food, and permit the use of much diluent drink, must expect but little success in the treatment. In dysenteric convalescents, the abdomen is often found tumid, and doughy or inelastic, although the stools are natural. This state frequently depends on vascular engorgement, or serous infiltration of the mesentery and mesocolon, as well as on congestion of the liver and spleen ; and if a very spare diet, tranquillity, and a course of mild purgatives, be not strictly followed for some time, in such cases, dangerous relapses are inevitable.

Practitioners, who are conversant with the Diseases of India, will admit that after Acute Hepatitis has arrived at a certain stage, its spontaneous termi-

nation is suppuration ; which in general proves fatal. In this malady, as well as Dysentery, it is necessary to ascertain the progress of the disease daily, by carefully but gently examining the belly. In obscure affections of the liver and spleen, our diagnosis is often much assisted by percussion, which is performed by slightly pressing the dorsal side of the index-finger of the left hand against that part of the abdomen which we wish to examine, and then striking that finger smartly by several fillips with the fore-finger of the right hand. The sound will often indicate the existence of visceral enlargement that could not be detected by any other mode of examination. I have advised a very active antiphlogistic treatment for those cases of acute Hepatitis which threaten to terminate in abscess, because I am satisfied that no other plan is safe. We may trust to the candour and impartiality of Curtis' evidence in this matter ; he bled his patients little, and seldom, from a fear of debility ; and he used much Calomel. No comment is necessary on the result of such treatment ; his work shews that he had a most extensive acquaintance with Hepatitis, terminating fatally by the formation of abscess. The utility of mercury in Hepatitis is readily admitted, but it is

subordinate to V. S., and its efficacy may be accounted for on the same principles on which its use in the remote stages of other inflammations depends. We have been told that mercury is beneficial in Hepatitis, in the way that the breast-pipe or pumprelieves inflammation of the female breast, when milk-abscess is impending. But a legitimate parallel cannot be established in the action of the respective remedies:—the pipe relieves the inflamed breast by drawing off the superfluous milk, *without exciting increased secretion*. Has the action of mercury an analogous effect on the liver? Among the diseases of the liver and its appendages, I have mentioned inflammation of the capsule of Glisson; an affection often combined with acute inflammation of the duodenum, but occasionally existing in an acute as well as a chronic form, when the intestine is not evidently implicated in the disorder. The enlargement of those absorbent glands in the capsule of Glisson, by the tumefaction of which compression of the biliary ducts is liable to be occasionally produced, has been recognised by other practitioners as the cause of disease, in many instances since the first edition of this work was published, and I am still more satisfied than formerly, in stating that Jaundice does arise from that cause.

Medical men, who reside in the Lower Provinces of Bengal, as well as those who have observed the effects produced on the human constitution in many other places by humid atmosphere and variable temperature, will not think that too much has been said, or any unsupported opinions advanced, in the chapter on Diseases of the Spleen. There are some districts in Bengal, having a dry sandy soil, where Diseases of the Spleen are comparatively very rare; the vicinity of Meerut and some other stations might be mentioned.

We must acknowledge that the peculiar nature of tumid spleen, and of the state of constitution usually co-existent, have been strangely overlooked by many modern writers on the practice of medicine: still it would be unjustifiable to propound the doctrines and observations now published on Spleen Diseases, as entirely new discoveries. Several phenomena connected with diseases of the spleen, were well known to the older authors. The frequency of foul and intractable ulcers, often attendant on Spleen Diseases, was noticed by Aretæus. Pliny makes mention of the influence of dry situations, on the size of the spleen; and some valuable though brief observations may be collected from the works of a few modern physicians. It is surprising that

this branch of pathology has not been more industriously cultivated in those countries where diseases of the spleen abound.

In the concluding chapter, I have only attempted to give a sketch of the more important modifications of Fever which are common in Bengal. These fevers possess of course a common character, such as the fevers of all countries are acknowledged to have; in consequence of which, some common objects of treatment will be observed in the whole of these diseases.

The recent practice of bleeding in Intermittents, as recommended by Dr. J. Mackintosh, not only accords with the acknowledged pathology of that class of fevers; but seems to bring our system of therapeutics as applied to them, within the limits of those established principles adapted to the treatment of other fevers, from which, formerly, Intermittents were almost excluded: and to this exclusion, and the frequent substitution of astringents and stimulants, instead of correct treatment, doubtless was due the remark which has been commonly made; namely, that the ordinary result of protracted Ague, though in general unattended with danger, was an impaired constitution; while a patient who had suffered a severe

continued fever, during which he had been for a time in a state of extreme danger, often rose from his bed of sickness to enjoy a better state of health than he had experienced for a long time before. Nothing is more easy than to object to the necessity of blood-letting in intermittent fevers, by saying that people do not die of agues, if the lancet be not used ; which is very true, but the *lurking inflammation* observed by Pringle as very often prolonging those diseases, is assuredly the cause of the visceral diseases and dropsies, of which vast numbers of patients die ; and the foundation of whose illness was the improper treatment of Intermittents, by stimulants. I have endeavoured to point out with more precision than was formerly stated, the cases in which V. S. may be necessary in Ague.

The term *Jungle Fever*, has not been used, from my not being acquainted with any exact definition of it. The fevers arising from actual exposure in the jungles in Bengal, vary considerably under different circumstances ; I trust the more important modifications have been duly pointed out.

There is reason to suspect that the use of the term *Bilious Remittent*, has led occasionally to error ; in consequence of the general opinion of

English practitioners, that a large quantity of Calomel is indispensable in the treatment of all Bilious Fevers ; whereas, it appears that some Autumnal Remittents are in their latter stages connected with vascular engorgement of the spleen, and a morbid condition of the system, in which the most pernicious consequences follow the use of mercury. The ground on which Autumnal Remittent fevers of warm climates are deemed to be principally dependant on disorder of the hepatic system, deserves a more deliberate and exact inquiry than has yet been bestowed on that subject. Those fevers do often commence with a vomiting of as much bile as is thrown up during the first hours of sea-sickness, when there is no question about disorder either of the bile or liver. The black matter, which is voided both upwards and downwards in severe autumnal fevers, attended with gastro-enteritis, has not been proved to consist in general of bile ; on the contrary, it has been often distinctly ascertained to be principally composed of disordered blood : and black secretions are voided from the intestines when the cystic duct is obliterated. I have been most anxious to fix on some criterion whereby the presence of bile in the evacuations and secretions may be certainly proved ;

and with a promptitude and facility rendering it applicable to practical purposes.

The grounds on which I would object to the doctrine which assumes that fever and inflammation are identical, and that fever *always* depends on local inflammation, are 1st, There are many cases of fever in which the intensity and danger of the disease bear no relation to the extent and degree of local inflammation, the danger being often great, and a fatal termination occurring when there is but little local inflammation ; 2nd, There are cases in which we find the dangerous symptoms obviated, and the fever arrested by means which have in general little or no beneficial effects in the removal of inflammation. I allude more particularly to the low form of the remittent fever, in which the local inflammation is often trivial ; we may adopt such treatment as shall diminish that inflammation, and in many cases the fever will not be decreased ; we may go on with the same remedies until the inflammation is subdued, and still we shall find the paroxysm return and destroy the patient ; not by violence of inflammation, nor by intensity of re-action, but after a very trivial accession of either, the patient sinks into a state like the collapse that occurs in cholera, and dies quickly. Now if fever

were *always* dependent on local inflammation, we should find that whatever diminished the inflammation would always moderate the fever, and whatever removed the inflammation would cure the fever. In making this statement I am most anxious not to be misunderstood ; for respecting the general concurrence of local inflammation with fever, every day's experience shows that fever is very soon attended by local inflammation, and that is the condition which requires unceasing attention ; the earlier it is subdued by blood-letting the more certain and safe is our treatment of fever. The intimate connexion of fever with inflammation is a practical fact of the utmost importance, and it is impossible to cure fever while local inflammation is unsubdued. It is to the exclusive and unqualified assumption of the identity of fever and inflammation, and that fever is *always* caused by inflammation, that I object. Those who insist on this doctrine, say, subdue the inflammation, and you save the patient, which, though generally true, is not invariably true. Those of a contrary opinion say, arrest the paroxysm, and you will prevent the inflammation and all its consequences, nay more, you will often prevent the fatal termination which depends on a condition in no way allied to inflammation. Those who act on this principle, at the same

time that they invariably direct their attention to the nature and degree of any inflammation, or any disordered secretions that may exist, will have the most success in the treatment of these remittent fevers.

On the subject of Cholera, I will here remark, that many Medical men who have only seen the disease during one season, have taken up some particular and exclusive notion of its nature, and have condemned the theories of all others; until they have been obliged to relinquish their own favorite opinion, after the experience of several years has shown them that there are varieties of Cholera, some of which are attended with symptoms indicating the presence of disease very different from what they would suppose existed when they refer to the predominant phenomena which occurred in other cases, which took place at other seasons.

At the end of each chapter, such remarks have been made as appeared requisite, regarding the modifications of disease to which the Natives of this country are liable. Such of their maladies as may be reasonably ascribed to high temperature, and the result of inflammation, are generally much slighter than corresponding diseases in Europeans, which is probably in a great degree owing to the peculiarities of their

constitutions, adapted to the climate ; but the difference is doubtless in some measure dependent on the simplicity of their habits with respect to food and drink, which must be acknowledged in many respects much more reasonable than ours. Under protracted exposure to malaria, with much fatigue and privations, their constitutions are soon subdued by malignant fevers of the most destructive description. The few observations at the conclusion of the second volume, are not intended as a complete exposition of the peculiarities of the constitutions of Asiatics, which have been heretofore too little noticed. My intention is rather to induce my professional brethren to lend their aid in accumulating such observations as may throw further light on this subject.

The plan which has been followed in this work, namely, that of supporting the views of pathology, and modes of treatment which have been recommended, by evidence derived from direct observation at the bedside of the patient, may save me from the imputation of founding my opinions on facts collected by the industry of my professional brethren—a miserable expedient, tolerated only in a degenerate state of science, the decline of which it

strongly evinces ; and worthy only of those authors who have no practical knowledge of the diseases on which they write. The spirit and philosophy of medical science, in the present day, require a diligent investigation of the foundation on which opinions are advanced, which is only to be accomplished by the laborious and accurate observation of facts, a system of late years happily substituted for the vague conjectures of former ages.

ON THE
DISEASES OF BENGAL.

VOL. I.

CLIMATE AND SEASONS.

CHAP. I.—DYSENTERY.

„ II.—DIARRHŒA.

„ III.—LIVER.

„ IV.—SPLEEN.

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207 27, *for* stage *raed* stages
220 30, *for* on medicinal, *read* on the medicinal
221 27, *for* system. *read* system."
326 19, *for* then *read* than
476 15, *for* forth *read* fourth



VOL. II.

- 16 13, *for* density, *read* density of the atmosphere,
434 27, *for* root, *read* seeds.
434 28, *for* ditto, *read* the root.

THE
CLIMATE AND SEASONS OF BENGAL.

THE climate of Bengal and the changes of the seasons in this part of India have so remarkable an influence on the health of Europeans, as well as of natives of the country, and atmospheric vicissitudes appear to produce so great an effect in causing and modifying the diseases to which all classes of the inhabitants are liable, that it will be expedient to take a cursory view of the climate and usual course of the seasons, before we enter on the consideration of those diseases which are most important, and the peculiar character of which medical men will be most anxious to study on their first arrival in this country. We not only find the nature of several diseases much modified by the different seasons, but some morbid changes, which are observed frequently in Bengal, seem in a great measure dependant on peculiar localities, or on the nature of the soil, air, and water of the districts where those affections are most prevalent. I allude particularly to diseases of the spleen, and some other maladies which will be noticed in the following pages.

In this part of India, we find the course of the year marked by three seasons, namely, a dry-hot period of about three months, from the 1st of March to the beginning of June: a rainy season extending usually from June to the end of September: and a cold season from the first of November to the end of February. The temperature of the atmosphere in the middle of the day begins to rise in the early part of February, and the heat continues gradually increasing, so that by about the 20th of March the hot season becomes decidedly established, and exposure to the sun between the hours of ten o'clock in the morning and four in the afternoon is very distressing to Europeans, especially if they have but recently arrived in the country. Not only has the thermometer at that time a high range, but the air is sultry and oppressive. The temperature in the shade during this season varies from 73° to 96° , the maximum, out of doors, may be estimated at 102° , but I have known the thermometer rise to 106° , in a carriage, though this is rare. The mean temperature may be stated at 87° for May, and 83° for the two previous months. During this period, in favorable seasons, in the lower provinces, the atmosphere is frequently refreshed by sudden storms of thunder, lightning, rain, and high wind; sometimes attended with hail. These storms usually come on from the west, or N. W., and most commonly about the hour of five or six o'clock in the afternoon. After one of these *North-westerns*, there is a temporary respite from the extreme heat, and

when much rain falls, the air is for two or three days comparatively cool and comfortable ; but if the north-wester be unattended with rain, the relief is much more transient. In March and April, strong and steady southerly winds prevail, and tend to render the heat somewhat more tolerable. For the last two or three weeks of May, we often have calm, close, sultry weather ; and when there is a clear sky, and no wind, heavy dews fall at night. During the last half of the month of May, the whole of June and July, and the early part of August, the sun at noon is nearly vertical at Calcutta ; indeed, it may be considered to be so, as far as relates to high temperature and its direct effects ; for during the whole of that period, we have the sun at Calcutta at an angle (at noon) not exceeding 5° , and it is absolutely vertical at noon, at some part of Bengal, between Kedgerree and Kishnaghur, every day for six weeks after the 28th May. The sun passes over Kedgerree going north, in the last week in May, Kishnaghur on the 17th June, and is at the tropic on the 22nd or 23rd of that month, returning to the latitude of Kedgerree about the 13th of July. The atmosphere is dry and elastic during the greater part of this season, and the affinity of the air for moisture is shown not only by the hygrometer, but by the perspiration being quickly carried off from the skin, so that those who use very light clothing are hardly aware of the degree of transpiration which is taking place from the surface of the body.

Experiments have been made to ascertain the extent of evaporation which takes place in the cold season, and during the dry hot months, at Calcutta, and the vicinity. The following rates have been stated as the probable evaporation from fresh water, or from salt water not containing a solution more concentrated than the water of the ocean. For the month of January, 3 inches; February, 5; March, 7; April and May, each 9 inches*. The above statement is not connected with any reference to the humidity of the atmosphere at the time; it exceeds the estimate made by other persons, relative to the evaporation during the hot season on another year, and from different data. The scientific Editor of the *Gleanings in Science*, gives the result of experiments on evaporation at Benares, as follows—the mean temperature (for four years), in the shade, 79° . The depression of the wet bulb thermometer, 9° . The annual evaporation, 64.5 inches. The mean annual evaporation in Great Britain being considered equal to about 32 inches, the quantity above specified

* Vide Herbert's *Gleanings in Science*, vol. i. p. 290. Those who desire information relative to the great variation in the quantity of evaporation from a given surface of water, when it is exposed to agitation by the wind, or by increase in the depth of fluid in the vessel on which the observations are made, and by slight differences of exposure and situation, may refer to p. 335 of the same work; where various experiments at Vera Cruz are detailed, and the result stated as follows:—mean annual temperature, at Vera Cruz, 76° , 74° . Estimated mean evaporation, 70 inches.

will not appear improbable in this climate at the season alluded to.

Although inflammatory fevers and other acute diseases do occur very frequently during the latter half of the hot-season, and much exposure to the sun is liable to produce fatal consequences, especially on Europeans recently arrived in the country ; the first half of this period of the year is in general deemed healthy. Young children, if not oppressed with too much clothing, are certainly more cheerful and healthy than at any other time ; and before the heat becomes intense, adults experience the comfort which arises from the circulation being steadily diverted to the surface of the body, whereby the system is relieved from the oppression produced by accumulation of blood in internal organs. The latter part of this season is exceedingly oppressive, but the distress and exhaustion arising from high temperature do not reach their acme, until the close and sultry nights of the latter end of May, cause restlessness and prevent sleep. However, compared with the hot nights which prevail at the same season of the year in the Upper Provinces, we must acknowledge that the average temperature of the nights in Bengal is moderate during the greater part of the hot and rainy season. The temperature at Calcutta is much more equable than at most stations in the Upper Provinces, where the thermometer rises higher in the hot-season, and falls lower in the cold-weather, the annual range of the thermometer there being above 80°, while

in Calcutta it cannot be estimated at much more than 50 Fahrenheit. Among the evils arising from extreme heat, we may enumerate vertigo, debility, and loss of appetite: but the latter must be considered as nature's method of protecting us against plethora and fatal inflammatory diseases, which would be liable to occur often, if the same quantity and kind of food were taken during the hot season, as is usually consumed by Europeans, without evil consequences in the winter. Both Hindoos and Mahommedans seem to suffer much from the heat, in the month of May, and are then liable to apoplexy, paralysis, inflammatory fever, and sudden attacks of Cholera attended with the early accession of coldness and collapse. During the latter part of the hot-season, those natives whose circumstances enable them to act as they wish, avoid as much as possible any exertion, they reduce the quantity of their food, and eat some fruits, which they consider cooling; in the afternoons they drink the fluid contained in the unripe cocoa-nut, or a very simple sherbet, or some sugar and water, the latter they think especially cooling; and they take occasionally in the mornings, an infusion of the *Nalta Pat*, the leaf of the *Corchorus Olitorius*, which they say has a cooling and mild tonic effect, at the same time, that it promotes digestion, and prevents lassitude. In fact, the natives, though adapted by nature to bear the climate, take more care to moderate the effects of the hot-season than Europeans—especially in their light clothing, abstemious food, and tranquil habits.

For some days before the rains commence, we may usually observe signs of the change which is about to take place. The sky becomes hazy in the day time, and covered with numerous fleecy clouds at night; and in the mornings a dense bank of clouds rises just above the horizon, to the S. and S. E., which on the first days of its formation is dispersed before 9 o'clock: these clouds increase daily and remain longer until the rain begins to fall. We find that the atmosphere is sensibly cooler as soon as the surface of the earth becomes completely wet; and the thermometer falls 8 or 10 degrees of Fahrenheit. The subsidence of dust and diminished temperature, render the first month of the rains agreeable, the effects of continued dry heat are alleviated, and vegetation now becomes luxuriant in the highest degree. The thermometer during the rains ranges from 76 to 91°;—and sometimes during an interval when no rain falls, the heat is as great as 96 or 98°. The atmosphere, being now completely saturated with moisture, has little affinity for more, so that the perspiration, which at this season is usually profuse, remains on the skin, without producing that sort of influence in cooling the body, which it appears to do in the dry hot months, when the air has a great affinity for moisture, and consequently evaporation at that time is rapid.

Strong and steady winds prevail for the first months of the rains, generally from the E. or S. E., occasionally shifting to the south, and more rarely veer-

ing round for a few hours to the westward. Heavy rain seldom continues for 48 hours without interruption, except at the commencement, or at the conclusion of the rainy season; and although there be rain on four or five days in almost every week, the mornings and evenings are more generally fine. After a cessation of rain for a few days, there are occasionally strong and sudden gusts of wind, with thunder and lightning, followed by heavy but transient showers. As the rains abate, the sun frequently comes forth with excessive heat, and is often productive of the most pernicious effects, especially towards the latter end of August, and in September, when the power of the sun is less tempered by cloudy days or rain, and the surface of the earth becomes again more heated, as the showers are less frequent and of shorter duration. There is lightning almost every night, during the whole rainy season, especially when the sky is hazy or covered with distant clouds; but after frequent falls of heavy rain for several days, the nights are often serene and fine, with a clear blue sky, and numerous brilliant stars.

Towards the end of the rains, the high temperature and humidity, conjointly, produce extreme languor, depression of spirits, and exhaustion of bodily strength, as well as of mental energy. Animals languish and become sickly, consequently meat and all market supplies are of indifferent quality. The natives suffer much during this season, and it has

been asserted, that of the whole number of deaths among that class of the population in the year in Bengal, $\frac{2}{3}$ occur in the months of August and September. The Hindoo month of *Bhadur*, extending from the 15th of August to the middle of September, is considered so insalubrious that great care is taken to avoid the exciting causes of disease. Those natives who are a little superstitious, look on this month, not only as an unhealthy, but a very unlucky time, during which they are unwilling to commence a journey, or undertake any business of importance which may cause fatigue of body or anxiety of mind. The country people say, if a servant lose his place, it is very unlucky for him to seek another employment in this month, rather let him remain unemployed; and if people undertake a journey in this month, they are very liable to lose their lives, or to have their health permanently impaired. Marriages are not contracted by the Hindoos in the month of *Bhadur*, and women do not visit their relatives. We may rest assured, that many of the popular conclusions respecting this month are the result of long observation, and that it is very unhealthy, more especially for those who are under the influence of anxiety, or much exposed to fatigue and atmospheric distemperature.

There is considerable variation in the period of the commencement, as well as termination of the rains. On some seasons the rains in the lower provinces of Bengal, set in as early as the 25th of

May, and then there is usually an interval of dry weather for 12 or 15 days at the early part of June; and it sometimes, though rarely, happens, that when the heavy rains begin early in June, there is an interval of two or three weeks about the middle of July, on which very little rain falls, and then the weather becomes exceedingly oppressive and unhealthy, in consequence of the stagnation of the atmosphere, and the hot and suffocating vapours which rise from the earth*.

The rains have in some years been protracted, continuing with little intermission up to the beginning of November, but this rarely happens. The rainy season usually commences earlier in the plains of Assam, at Arracan, and the various stations to the eastward; and often continues much later than in Bengal: the quantity of water which falls at those places is greater than in this part of the country. In the Upper Provinces, on the contrary, the rains are often as late as July in commencing, and they last only seven or eight

* We have yet to ascertain what are the physical properties of malaria, and in what respects noxious exhalations differ from ordinary aqueous evaporation. The air, disengaged from marshes partially inundated, and the bubbles which are seen on the surface of the mud, beneath stagnant water, consist of carburetted hydrogen gas, a small proportion of carbonic acid gas, and common air. Men, who have breathed carburetted hydrogen gas, in experiments, in proportions as large as are found to exist in the air about the most pestilential marshes, have not been attacked by the symptoms or diseases usually ascribed to malaria. The effects usually ascribed to malaria are most conspicuous at situations, and on seasons, when intense exhalation is co-existent with great diurnal changes of temperature.

weeks. The seasons in the central and upper parts of India, consisting of a long winter of above five months, in which the atmosphere is cold, dry, and bracing, and there are no fogs, the mornings at Meerut, and the stations in that vicinity, being clear and cold, as early as the 20th September ; and a long dry season, during which extremely hot winds prevail, and the whole face of the country appears burnt and parched, and the nights are for a considerable period exceedingly distressing from the extreme heat, and stagnation of the atmosphere.

The average quantity of rain which falls annually in Bengal is about 70 inches. The ground becomes completely saturated with water by the end of August, the tanks are filled to very near the level of the surface of the earth, and a great extent of the flat country is then inundated. “ The Ganges begins to rise from the melting of the snow in the Himalaya mountains; as early as the beginning of May, but its rising does not sensibly affect the Hoogly till the beginning of July ; at that period so large an accession of water is thrown into the Hoogly, that its level is bodily raised, both at high and low water. The last is so remarkable, that the low-water of the freshes (neap-tides) is higher than the high-water (neap-tides also) of the dry season, by several feet. The river is swollen by the freshes in July, August, September, and part of October. The freshes take off about the middle of September, and are generally out of the river by the end of October. In July, the strength

of the flood-tides is counteracted by the freshes, and this therefore is a moderate month as regards tides. In August, the flood-tides are overcome by the freshes. In the beginning of September, the freshes are at their height, there is no visible tide off Calcutta, the ships do not swing up, and the river water is perfectly sweet, far beyond Saugor in the open sea. From the point of the lowest low-water in the dry season, to that of the highest high-water in the freshes, is twenty feet ten inches. The river is at its lowest in the beginning of March." As authority for these statements, relative to the rise of the Hooghly, I refer to Mr. Kyd's elaborate and scientific communication published in the Asiatic Researches.

The water of the Hooghly is very muddy during the rainy season; the quantity of earthy matter suspended in the water of the Ganges varies much, according as the water examined is taken from a place where the current is rapid, or otherwise, and it is also less on calm days than when the wind is high. During the height of the rains, and when strong winds are blowing, the proportion of earthy matter varies from 14 to 23 grains per pint. This is the result of some experiments made during a voyage up the Ganges in 1823. I find it exceeds the highest quantity ascertained by the Rev. Mr. Everest, from several experiments which he made seven or eight years afterwards, and probably at a different part of the river, therefore I offer this statement with some diffidence, merely as an approximation to a correct

estimate: it will be remembered, that 1823 was a remarkably tempestuous season.

The month of October is both unhealthy and disagreeable, from its high temperature and calm and sultry nights. The great heat being not generally relieved by any certain succession of showers, great evaporation takes place as the inundations recede from the plains, exposing a vast surface, productive of the most unhealthy exhalations. The mean temperature of this month is 80° ; the winds at the first part of the month are variable, afterwards northerly.

The influence of the weather, during this month, in the production of disease at a subsequent period, will be acknowledged, when we observe that the high temperature, and circumstances which tend to keep up the great degree of evaporation, above-stated, are followed by the abrupt diurnal changes of temperature, which take place in the early part of November; then the alternation of foggy mornings, hot days, and cold nights, coming immediately after the hot, close, and sultry weather, which prevails in October, gives rise to intermittent fevers, dysentery, and abscess of the liver, which diseases occur very frequently after the northerly winds have set in.

The month of November brings us the cold season in Bengal; soon after the 25th of October, we find the nights are cool, and the mornings foggy. The sky is clear in the day, the barometer rises a little, and the atmosphere gradually becomes dry. During the months of November, December, January, and

February, the climate of Bengal is cool and agreeable to Europeans ; at the commencement and conclusion of this period, however, the sun is powerful, and the heat at mid-day oppressive : but for nearly the whole winter, the nights are cold, and when there are no fogs, the mornings and evenings are cool and delightful. In the day-time the sky is serene, and the atmosphere for the most part, dry and elastic. Northerly winds prevail, and the thermometer varies from 46 to 78°. The mean temperature of the four months may be about 66°. There is usually some rain within a few days before or after Christmas, and in the month of January, there are often heavy fogs at night, and they sometimes continue until 7 or 8 o'clock in the morning. All nature seems to revive during this season, the cool and invigorating wind from the north reminds the European of his native climate. Cattle now become healthy and in good condition, consequently the markets are supplied with meat of the best quality ; and most European vegetables are abundant, and with few exceptions, equal to those found in the London markets.

Notwithstanding the restoration of vigor and activity, experienced by those in good health, during the Bengal winter, old and emaciated persons, with broken constitutions ; and pale, thin, and sickly children, seem benumbed on the commencement of the cold and damp weather in November ; the powers of their constitutions are subdued, and many such subjects die before the end of the year.

Table showing the Mean Temperature, &c. at Calcutta, for every Month in the Year 1830.

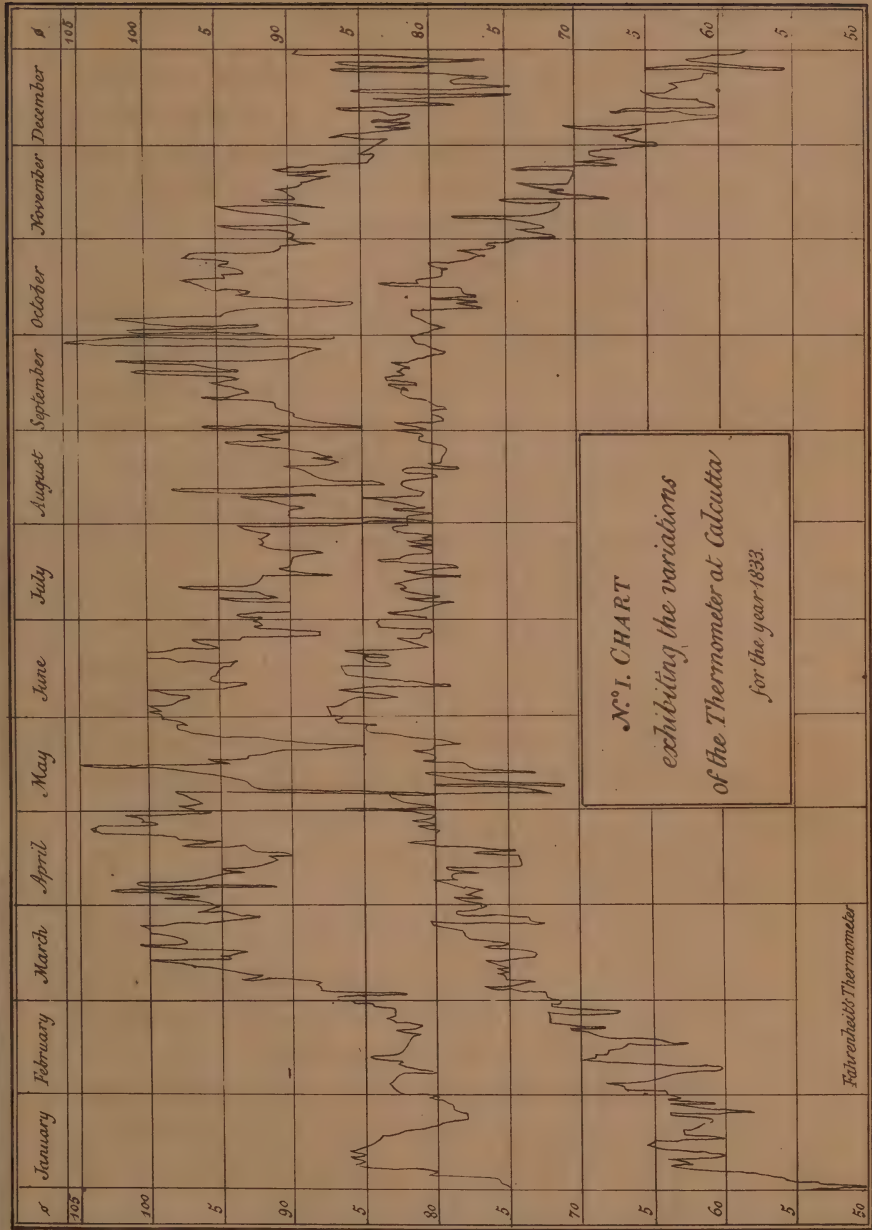
	Minimum Temperature observed at Sun-rise.				Observations made at apparent Noon.				Maximum Temperature and Dryness, observed at 2h.50m.				Observations made at Sunset.				No. of days in each month on which any appreciable quantity of rain fell.
	Temperature.		Barometer reduced to 32°.	Comparative tension of Vapour.	Temperature.		Barometer reduced to 32°.	Comparative tension of Vapour.	Temperature.		Barometer reduced to 32°.	Comparative tension of Vapour.	Temperature.				
	Of the Air.	Of deposition.			Of the Air.	Of deposition.			Of the Air.	Of deposition.							
January, ..	53,3	49,	86,4	74,1	46,	,085	39,4	76,7	43,7	,019	33,4	68,1	50,5	56,	1,72	8	
February, ..	29,956	65,2	63,2	93,9	82,3	61,3	50,7	85,7	58,5	,893	41,5	80,3	58,0	48,5	1,72	8	
March, ..	,842	75,7	73,6	93,3	83,3	66,2	57,5	85,9	74,8	,758	51,0	78,9	65,3	64,5	5,54	4	
April,	,775	75,7	73,0	91,7	88,1	72,0	60,1	90,2	69,6	,724	52,1	83,3	71,0	67,6	5,54	4	
May,	,626	77,7	75,6	93,4	88,2	77,0	70,5	90,4	76,7	,586	65,0	84,3	76,3	77,6	12,71	9	
June,	,559	80,1	77,9	93,2	88,1	78,4	73,8	87,4	78,9	,528	76,8	82,8	77,8	85,5	11,21	13	
July,	,590	79,3	77,2	93,5	84,8	78,1	81,0	84,7	78,2	,556	81,4	82,0	77,6	87,2	10,58	9	
August, ..	,621	79,1	77,2	94,3	86,0	77,8	77,2	84,9	77,9	,583	80,3	82,9	77,6	86,1	10,73	19	
September, ..	,654	79,3	77,5	94,3	86,7	77,4	74,8	86,1	77,2	,611	75,9	83,	77,6	84,4	5,98	10	
October, ..	,799	77,3	75,5	74,5	85,8	75,4	72,3	85,6	75,4	,740	72,6	81,0	75,0	82,5	4,81	4	
November, ..	,925	66,7	62,5	86,9	78,9	62,8	59,3	79,8	61,5	,865	54,2	75,2	63,7	69,0			
December, ..	30,049	58,1	54,3	87,9	75,3	56,8	54,4	77,4	55,8	,983	49,2	71,8	60,1	68,1			

The foregoing Table shows the mean temperature, &c. of each month in the year : it was drawn up from the Meteorological Register kept during the year 1830, at the office of the Surveyor General of India. The Chart No. 1. shows at one view the highest and lowest range of the thermometer, during the whole of the year 1833. Chart No. 2, is also annexed, intended to show at one view the mean diurnal variations of the thermometer at Calcutta, for every hour of the day and night, on each month in the year 1829. It is taken from the *Gleanings in Science*, Vol. II. and is constructed “ by protracting the temperature at the different hours as given in the Meteorological Register, and drawing through the points so as to get as nearly as possible the mean temperature of the 24 hours. The mean of 10 o'clock A. M. and P. M. gives $78^{\circ}.0$ while 4 A. M. and P. M. give $78^{\circ}.2$, the mean of both being $78^{\circ}.1$, which is probably very near the true temperature of the whole year.

“ The mean of each month may be seen in the annexed table :

“ January, $66^{\circ}.2$ —February, $69^{\circ}.8$ —March, $80^{\circ}.0$
—April, $85^{\circ}.4$ —May, $85^{\circ}.7$ —June, $83^{\circ}.7$ —July, $81^{\circ}.8$
—August, $82^{\circ}.0$ —September, $82^{\circ}.8$ —October, $79^{\circ}.2$
—November, $74^{\circ}.2$ —December, $66^{\circ}.6$.

“ Comparing the mean temperature of the whole year with that of each month, we find a correction to be applied to each, in order to have the mean of the year.

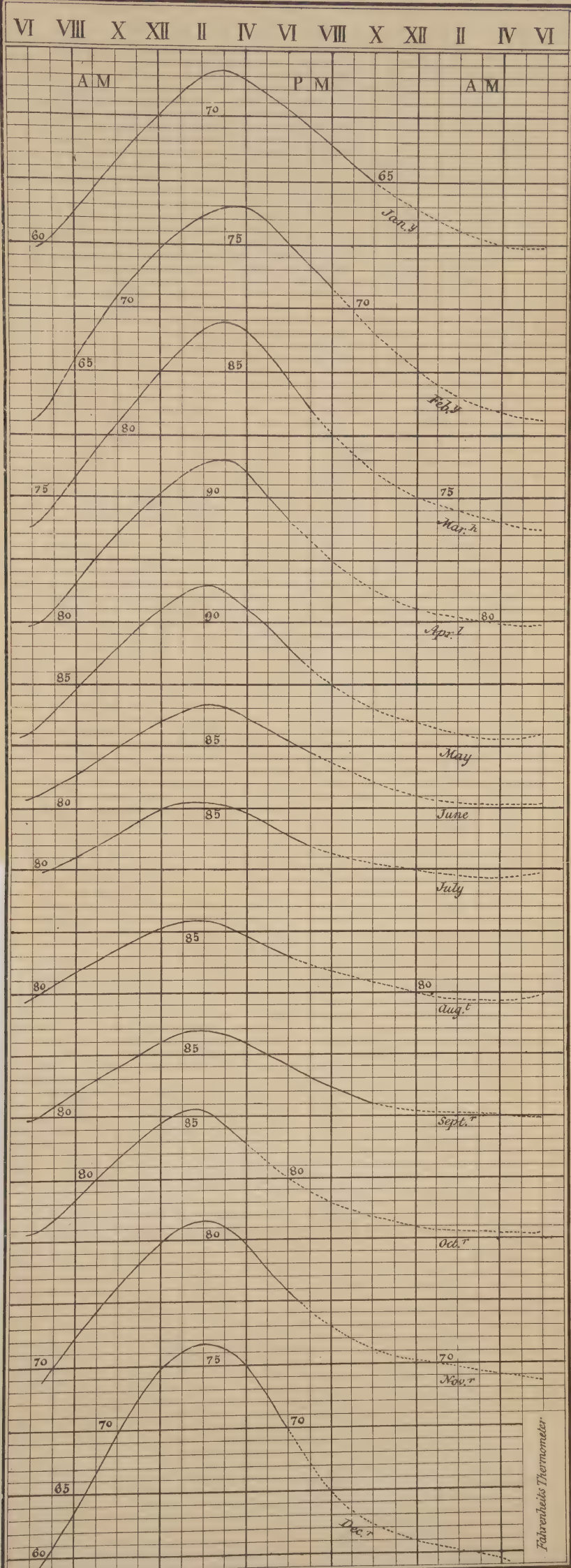


Fahrenheit's Thermometer

J. B. Tasson del.

J. M. Montgomery fecit

N^o II. CHART of the temperature of Calcutta for 1829.
 Showing the mean range of each month, on every hour of the day and night.



“ Thus the mean temperature of the year, is equal to that of :

“ January + $11^{\circ}.9$; February + $8^{\circ}.3$; March— $1^{\circ}.9$; April— $7^{\circ}.3$; May— $7^{\circ}.6$; June— $5^{\circ}.6$; July— $3^{\circ}.7$; August— $3^{\circ}.9$; September— $4^{\circ}.7$; October— $1^{\circ}.1$; November + $3^{\circ}.9$; December + $11^{\circ}.5$.

“ These numbers may probably vary in different years, yet they give some information which would be increased by farther comparisons.

“ Since August is as much above the mean as November is below it, these two months will probably give the mean of the whole year.

“ By looking at the Chart, it will appear that the greatest range of temperature occurs in December and January, when it amounts to about 18° .—The least range is in July, amounting to about 6° .”

Some diseases appear to be particularly influenced by the different seasons noticed in the foregoing pages :—for example, during the hot-season, inflammatory fevers, apoplexy, and mania are more frequent than at other periods. Influenza occurs occasionally, catarrh is very prevalent at the early part of this season, and suppuration of the lungs takes place and terminates fatally in a short period ; patients, having chronic disease of the lungs, and who considered themselves only occasionally asthmatic for two or three years before, are apt at the commencement of the hot-season to sink from suppuration of the lungs, without its first stages being indicated by symptoms of much severity. The diseases most

common in the rains are the remittent fever, dysentery, and diseases of the spleen; and when heavy rains commence abruptly after a very hot-season, severe catarrhs and sore throats occur frequently. During the cold season, intermittent fevers, dysentery, hepatitis and hepatic abscess, catarrh, rheumatism, measles, and variola. The appearance of the small-pox at the end of the cold season has been ascribed to the practice of variolous inoculation by the natives; but measles are confined almost exclusively to the last two months of the cold season, and the first month of the hot-weather, but its propagation is not ascribed to a similar cause. When rubeola prevails epidemically at a late period of the hot-season, the eruption is usually very florid, the pyrexia severe, and the disease is in some seasons fatal; but generally, measles and hooping-cough are mild diseases in Bengal.

Independently of the more palpable effects of climate and season, arising from high temperature and humidity, the healthiness or unhealthiness of particular localities is much influenced by the circumstances which tend to favour or to impede the terrestrial radiation of caloric, which is often an active agent in producing sudden transitions of temperature, and this is one cause of the prevalence of some diseases in a circumscribed space, which ought to be considered, if we wish to estimate correctly the exciting causes of impaired health. It can hardly be doubted that the capacity for radiating heat, which belongs to some situations, has been the efficient

cause of fevers, and some other diseases, which have been supposed to arise from malaria. Addison has stated that all those places where the radiation of caloric goes on with rapidity, will be found subject to great vicissitudes of temperature, to fogs, heavy dews, and other noxious precipitations from the air, whereby they are rendered cold, damp, and oftentimes extremely unhealthy; while *ceteris paribus*, those situations where the terrestrial radiation is diminished, will be proportionally warm, drier, of more agreeable temperature, and more healthy.

EFFECTS OF CLIMATE ON EUROPEANS.

The influence of the climate of India on the European constitution, may be considered, in reference to the immediate or early effects of a tropical climate on Europeans recently arrived; the more remote changes which are produced by a prolonged residence in this country; and the effects on the European race born and reared in India.

Great and continued heat, if not the immediate cause of disease in newly arrived Europeans, undoubtedly produces in the first instance, a proclivity to fevers and inflammatory diseases, on slight errors of diet, when the bowels are constipated, when violent exercise is persisted in for a long time, or when slight changes of atmospheric temperature occur. The first effects which Europeans experience on

arrival in this climate, in the hot-season, are a sense of distress and discomfort ascribable to the direct effects of heat, the constitution is irritable and easily affected by stimuli. Perspiration is much increased, the hands* and feet are hot and apt to become swollen, the temperature of the internal parts of the body, ascertained by placing the bulb of Fahrenheit's thermometer under the tongue, is found to be rather more than a degree higher than in Europe. From the result of a number of experiments made with great care, on persons in good health, in the month of May, when the thermometer was 91° at 9 A. M., it appears that the average temperature of Europeans who have been from 4 to 7 years in India, is $99^{\circ},007$, and this increased temperature of the body is found to be permanent, at least it continues in general until the vigor of the European constitution is much subdued by residence in this country. The skin acquires a morbid irritability, in consequence of which moschetto bites produce much swelling and inflammation: the lichen tropicus or prickly-heat is an affliction with which every body becomes familiar soon after arrival in a tropical climate; and many persons suffer from boils. The urine is secreted in smaller quantity, and is said

* This may seem too trivial a circumstance to deserve particular notice, but it is worthy of remark, that a *permanent dry heat of the hands*, in a newly arrived European, generally indicates a proneness to some visceral disease, which would afford reason for believing that his constitution would not endure a residence in this climate.

to contain more urea and less uric acid than in Europe. During the cold-season in Bengal, the urine is in general copious and limpid. There is a tendency to constipation of the bowels ; and in most people, sooner or later, a decreased disposition to activity both of body and mind. The pulse is somewhat diminished in frequency : but the exceptions to this observation are very numerous ; in irritable constitutions, the pulse is often frequent and weak, while in plethoric habits, with rigid muscular fibre, and what has been termed predominant development of the muscular system, the pulse is often quick and strong. The respiration is in general rather slower than in Europe ; but in this, as well as the state of the pulse, are many exceptions. The diseases, during the first years of residence in a tropical climate, are for the most part, of a highly inflammatory tendency, and in India, abscess of the liver frequently occurs.

After a few years, the morbid irritability of the skin decreases, the liability to suffer from prickly-heat diminishes, or ceases altogether, and the bites of moschettos or other insects cause much less irritation and less swelling than at first. The commencement of the hot-season is less distressing, and most of the evils arising from high temperature are borne with less suffering ; but debility and a sense of lassitude from slight exertion is more felt. However it must be acknowledged, that the power of accomplishing undertakings which require either mental or bodily exertion, is much modified by the habits

in which individuals may have usually indulged : nothing is so destructive of energy of body and mind as habitual indolence and inactivity in a tropical climate. Those persons are undoubtedly the most happy, who have sufficient opportunities and inducements to keep themselves always employed in useful occupations ; and they alone preserve their vigor of body and mind, unimpaired, during a long residence in India. Admitting all this to be true, it is certain, that no care as respects our habits of living, and occupations of mind, can completely counteract the influence of climate ; and a tendency to chronic disease of some vital organs is found to take place much before the ordinary period of senescence in Europe. In situations where an humid state of the atmosphere prevails, the skin soon becomes of a pale and unhealthy white color : while in those who reside for a long time at stations remarkable for a dry sandy soil, dry atmosphere, and hot winds, the skin gradually becomes tanned, of a sickly yellowish white, and the surface of the skin acquires an opaque thickened texture, and muddy dull appearance. This thickened state of the skin is said to be more remarkable at hot stations on the coast where sea and land winds prevail alternately. The white leprosy, and the tubercular leprosy, occasionally, but very rarely occur in Europeans long resident in India. I have seen several instances of both those diseases in European subjects. One patient, a woman above 70 years of age, (upwards of 50 years of which

she had resided in Bengal,) was affected with the white shining spots of Alphas, and both her legs were extremely diseased with the *Bucnemia tropica*. Beri-Beri appears to depend on climate, it is in great measure confined to particular stations, and has been supposed to depend on something peculiar in their locality; but officers, women, and boys before the age of puberty, are so rarely affected at the same stations where soldiers suffer most, that some other efficient cause must exist. The appetite is very liable to become subdued by long residence in India, and the powers of digestion are gradually much impaired; the muscular system is in many cases considerably wasted. With the subsidence of plethora, the diseases of the old resident in India have a less strongly marked inflammatory character, many diseases are therefore more insidious and more dangerous; and part of the danger undoubtedly often arises from an opinion that the inflammatory diseases of those Europeans who have been long subject to the climate, do not require active and diligent treatment.

Urinary calculi, and pulmonary diseases, were formerly supposed to be rare in India; but I believe that practitioners who have had much experience in this country, will refuse to acknowledge the justice of those conclusions. With respect to the former disease, the Transactions of the Medical and Physical Society of Calcutta contain ample evidence of the frequency of stone in the bladder, both in Europeans and Asiatics. The splendid and numer-

ous specimens, in the Society's Museum, furnished principally by Mr. Burnard of Benares, and Mr. Brett of Shajehanpore, and the history of the cases attached to those specimens, bear testimony to the frequency of the disease, as well as the skill and science with which those gentlemen perform one of the most dangerous operations in surgery. The successful operations of Messrs. W. Darby, W. Bell, and Dr. W. L. McGregor, afford evidence of the frequency of the disease among the inhabitants in the vicinity of the great Himalaya mountains, and to the westward of the Indus, among the Seiks. In the lower provinces of Bengal, the disease is by no means rare. Mr. Egerton has recently operated successfully on an European child, and on a native, in Calcutta, and numerous other cases might be mentioned. I have myself several times met with urinary calculi among Europeans, Indo-Britons, Hindoos, and Mahommedans. Red sand may be frequently observed in the urine of persons otherwise in good health, especially in the cold season, and many Europeans, as well as Asiatics, have shown me small calculi voided per urethram. A small hemp-seed calculus, voided by a child, whose parents were European, was sent to the Society a short time ago by Dr. Davis. I am not aware of the grounds on which professional men in Europe, a few years ago, asserted that urinary calculi were exceedingly rare in India. The result of my own examination of a number of the urinary calculi of Asiatics, affords reason for believing that the urinary calculi of

natives of India appear to be subject to the same laws in respect to composition and formation, which obtain among Europeans in our own climate. Lithic acid, and lithate of ammonia, are the predominant ingredients of the majority of urinary calculi that have as yet been collected in India. And we observe, that lithic acid, or oxalate of lime, are the most common nuclei of urinary calculi among natives. Whether the deposition of these substances originally depend on some local disorder of the kidneys and urinary secretion, or on disease of the constitution, more generally; the particles of the lithates and oxalates appear to coalesce most readily when calculi begin to form. Whereas, the phosphates, though frequently existing in the state of fine white powder, or white sand; and being in most constitutions quickly deposited whenever a nucleus is afforded; are rarely found to constitute the centre of calculi. But when any extraneous body is lodged for a considerable time in the bladder, a deposit of the phosphates takes place, more readily than the lithates, or oxalate of lime; especially, if the foreign body be rough, and the bladder in a state of irritation. With respect to the lithates, and oxalates, after the deposit of these substances has gone on for some time, the disposition to their formation often appears to cease, probably from some change in the constitution: but the local circumstances requisite to induce concretions of the phosphates; i. e. nucleus and irritation, existing, the exterior of many large urinary calculi are com-

posed of those substances, which rarely form the nucleus.

With respect to pulmonary affections, although we do not so often see cases of pneumonia or pleuritis in this country as in Europe, every old practitioner knows how often the lungs suffer from congestion during fevers ; and the occurrence of pleuritis ending in hydrothorax is by no means uncommon. The lungs also suffer from proximity to the liver and spleen ; the diseases of one of which organs often cause some disorder in the corresponding side of the chest. Disease of the lungs, not ascribable to affections of adjacent viscera, occurs frequently in Bengal, and is very liable to terminate in suppuration. Tubercular phthisis is frequent, and abscess of the lung, not evidently preceded by tubercles, is not very rare. Phthisis Pulmonalis preceded by tubercles, is a common and of course a fatal disease among Indo-Britons of weak constitution, slender frame, and narrow chest. I am desirous of drawing particular attention to the unfavorable effects of this climate on advanced stages of pulmonary disease, attended with suppuration, because I have known persons sent from England to India, on account of cough, attended with mucopurulent expectoration tinged with blood ; which symptoms had existed for some time before they left home, and those persons lived but a short time after their arrival in this country. Pulmonary suppuration, with few exceptions, proceeds to a fatal termination much more rapidly in Bengal than in England. Per-

sons having a tendency to phthisis pulmonalis, but in whom the disease has not commenced, and some few who are suffering from other incipient affections of the chest, unattended with any cough, suppuration, or expectoration, derive benefit from residence in Bengal, provided they are not obliged to undergo much exertion, and that they live temperately. Asthma is as severe and as intractable a disease in this country, as it is in Europe.

The influence of the climate of Bengal on the constitutions of European women, is a subject which requires the careful consideration of the practitioner. The effects of this climate on the constitution of the European female, will be observed in various morbid conditions of the function of menstruation, and in the state of the system at those periods when that secretion is going on. During utero-gestation, the peculiar symptoms arising from local or general plethora, or from constitutional irritability, are frequently productive of much greater distress, and the health is more impaired than commonly happens under similar circumstances in cold climates ;—a tendency to frequent miscarriages may be ascribed to these as well as other causes. The process of parturition, the period of recovery, the treatment requisite during that time, and the state of health of European women while nursing, are also much influenced by this climate, and should be duly considered before we give an opinion when consulted on those subjects. In a climate where the health of the majority of

European women is so much affected, there can be no doubt that we should give the preference to a native nurse, whenever the mother is herself unable to nurse her offspring. The changes which are occasionally liable to be produced on the uterus in the course of some acute diseases, and the subsequent influence which those changes produce on the general health, as well as on the uterine functions, appear to be exceedingly important. There are also some indirect, or remote effects of this climate, which may be observed in the condition of the uterine system of European females long resident in this country, and by which the general health is often much affected. Some of these subjects will be incidentally noticed in the course of this work.

The influence of the climate of Bengal on the children born of European parents, and reared here, is very remarkable. The children of Europeans, when born, are usually in good condition, and they thrive remarkably well until they are four or five years of age; a warm atmosphere appears to be congenial to them up to that time, and they are in general particularly healthy during the early part of the hot season. The greater number of the children of Europeans, born in Bengal, are pale; after the end of the fifth year they become thin, the fat disappears from the surface of the body and limbs, the muscles waste, the appetite becomes impaired and capricious, the digestion is imperfectly performed, they grow tall, the chest appears flat, and the action of the heart is often much

accelerated by slight exercise ; there is a listlessness of mind and much languor and indifference to the active pursuits which are natural at that period of life. The dentition of infants in Bengal is more dangerous than in England : and attended with more distress to the child : the cutting of the second or permanent set of teeth, is often followed by a remarkably unfavorable change in the constitution. About that time, blue veins appear on the pale face, and on the sides of the chest and belly ; the mesenteric glands become slowly affected in many cases, and in some others enlargement of the spleen takes place. The majority of those who arrive at the adult period of life, without leaving this country, bear marks of having been reared under the influence of an uncongenial climate. Does the third generation of the European race exist in India, all the individuals being of pure European descent, and having been born and reared in this country ? We might have expected to find some instances of the sort at the large settlements in India, as well as at the cantonments of European regiments, or at the stations of invalids or pensioners, where the descendants of Europeans might have intermarried and their children become settlers : but all the inquiries which I have been able to make, afford no evidence that the third generation of pure European descent, exists in India. The influence of climate was not less unfavorable to the descendants of those Portuguese who settled in various parts of India, soon after the expeditions of De Gama and

Albuquerque, than it is to the descendants of Britons at present. I find on inquiry, that the descendants of Armenians born and bred in Bengal, suffer in a marked degree from the climate, and in general, grow up much less robust, and less healthy than the same race in their own country. The fact is, that something more than temperature is to be considered, when we inquire into the causes which prevent the propagation of an imported race in particular climates. Many thousand Africans were brought to Ceylon by the Portuguese colonial Government, and a considerable number more by the Dutch, in 1782; none of the race now exist there. Above four thousand Africans were at different times imported into Ceylon by the British Government, subsequently to our taking possession of that island. The number of these and their descendants, who were living at the end of December 1820, was below five hundred. A large proportion of females was always brought with the males, they were amply supplied with provisions, and every endeavour was made to favour the successive production of the African race in Ceylon, as it was found that they very rarely suffered from the endemic fevers of the country, even in the most unhealthy situations, and it was hoped that their descendants would be hardy and useful soldiers. Notwithstanding the utmost care that could be bestowed on these people, to afford them the means of living comfortably, and as much as possible in conformity with their own habits, the African race could not be

propagated in the island. "During early infancy, the children born in Ceylon, of African parents, are plump and healthy, but by the time they reach five or six years of age, they droop, become meager, and generally die before the age of puberty. The great mortality among the offspring of Caffries, cannot be ascribed either to neglect on the part of the parents, or to their being exposed to great hardships."—*Marshall's Medical Topography of Ceylon.*

CLIMATE OF THE MOUNTAIN STATIONS.

It is not surprising, that the European residents in this country, living in a climate the mean annual temperature of which is 30 degrees of Fahrenheit, above the average of Great Britain, should anxiously seek for cooler and more healthy stations among the elevated regions which exist in various parts of British India. Temperature decreases according to the elevation, in a ratio which may be taken at one degree for every 300 feet of ascent : but in the climate of hill-stations, various other conditions of atmosphere besides coolness must have an influence on health ; among these may be enumerated, diminished atmospheric pressure, and a more rarified state of the air ; and in consequence of the decrease of density, its capacity for caloric is increased in the more elevated regions. The want of healthy stations with a low but uniform temperature, and dry atmosphere, as resources for the

recovery of European convalescents, as well as for the restoration of health of those whose constitutions have gradually sunk under the influence of a tropical climate, has been long acknowledged: but it is only of late years, that actual experiments of the effects of several of the most promising and most accessible stations, have afforded the means of ascertaining the benefits which the mountain regions in this climate actually afford, for the restoration of health to European invalids. Experience has shown, that the elevated regions now alluded to, are productive of vast advantages, in completing the recovery of those who have been much reduced by fever, dysentery or other acute diseases, soon after their arrival in India, and before their constitutions have been much impaired by long residence in this climate, and who are not suffering from any tendency to disease in the liver or lungs. Under these circumstances, young persons not long resident in India, soon experience the most complete restoration of health and strength. The low temperature of those hill stations at which the patient can be kept through the whole year, appears favorable for the recovery of those suffering from mental alienation, but sufficient trials of such cases to authorize a decided opinion are as yet wanting.

Among persons longer resident in this country, those who are suffering from slighter degrees of hypochondriasis, and a great variety of disorders of the digestive organs, numerous nervous affections, the general ill health arising from those disorders usually

denominated dyspeptic, and some descriptions of irritable ulcers, as well as obstinate cutaneous eruptions, connected with constitutional irritability, may in general be expected to derive great benefit from a residence in the hills.

Many of those persons whose constitutions are impaired by protracted residence in a tropical climate, together with the wear of arduous official duties inducing general ill health, and loss of strength and spirits, unconnected with any marked symptoms of particular disease, will not be disappointed, if they seek a restoration of health, in a prolonged suspension of official toil, and a trial of the “invigorating and elastic freshness of the mountain air;” the benefits of which have been ably pointed out by Mr. Walker, in his account of the convalescent station of Malcolm Pait in the Mahabuleshwar hills. Convalescents and sick who visit the hills, should remember that climate alone will not in all cases effect a cure, unless aided by a regulated system of diet and exercise, and by appropriate clothing; and that a careful plan of medical treatment, must, in many cases be followed with fidelity, or recovery will not be accomplished.

Notwithstanding the great benefits derived, under particular circumstances, and in fit cases, from visiting some of the hill stations; great deductions must be made from the sanguine hopes which were at one time entertained, of finding a climate productive of all the benefits to be obtained by

a sea voyage, and a prolonged residence at the Capé, or in Europe. Some of these exceptions to the general fitness of the hill stations for the recovery of European invalids, apply to all the places yet occupied ; other objections arise from some peculiar local inconvenience, or unfitness, connected with an individual sanatorium.

The immediate effects of transition from the plains of India, to those stations where the elevation is considerable, and when the journey has been quickly accomplished, are, more or less giddiness of the head, and dyspnœa, slight exertion often occasions an increased frequency of the pulse, and hurried respiration ; sometimes dyspeptic symptoms occur, and occasionally diarrhœa. These affections are experienced by a considerable proportion of convalescents, on their first arrival at the cooler and more elevated districts ; but provided the individual be not suffering from visceral disease, the inconvenience subsides in a short time, and the system soon begins to derive benefit from the change of climate.

An abrupt change to a mountain station is always productive of some congestion of the lungs and liver, even in healthy persons ; and patients who are labouring under diseases of those organs, cannot resort to the hill climate without much injury, and in many cases the utmost danger. Patients whose symptoms were indicative of chronic hepatic affection, which symptoms were becoming gradually more indistinct, and the disease apparently on the decline, have sunk under

abscess of the liver, soon after ascending to elevations where the cool atmosphere has repressed the circulation on the surface, and abruptly caused internal congestion, at the same time that perspiration was checked; in the same way that the commencement of our cold season in Bengal, coming quickly after the hot and sultry month of October, produces a tendency to the central abscess of the liver.

Intermittent Fevers, and some maladies complicated with disease of the mesenteric glands, are in general unfit to be sent to the hills for recovery; the same may also be said of almost all cases of chronic visceral disease, the result of a prolonged residence in a tropical climate, in which much change of structure has taken place: but many of the constitutional disorders produced by repeated attacks of intermittent fever, such as general debility, dyspepsia, and the sallow exanguious complexion which often follows protracted agues, may be cured by a sufficient residence in those hill climates, which have the requisites of uniform and low temperature, and a dry atmosphere.

With respect to particular stations in the Bengal Presidency, Chirra Punji in the Casia Hills, at an elevation of about 4,300 feet; may be reached from Calcutta in five days by a steam-boat, at the middle or latter end of October; and by a Budgerow, or small Pinnace, in 15 or 20 days; that is, to Panduah, at the foot of the ascent to Chirra; from whence the journey may be accomplished in 12 hours. After

the beginning of November small boats are requisite, and even with them, there is a longer journey by land, with some delay, and more expense. Chirra Punji is available from the end of October till the beginning of the rains, which generally commence there in June, but sometimes, though rarely, as early as the latter end of April, or beginning of May. In the winter, the air is cold, dry, and bracing, the temperature sometimes as low as 28° Fahrenheit. During the hot season, the climate is as delightful as the finest summer months in England. The rainy season is long and dreary; a much greater quantity of rain falls than in Bengal, and in the intervals of rain, the sky is hid for a week at a time, by dense and humid fogs. During July and August, and 16 days of June, 1832, above 150 inches of rain fell, according to a Register kept by Mr. Cracroft, and published in the Journal of the Asiatic Society. The houses at this station are bad, and several persons who have gone there in good health, have died of abscess of the liver. The place chosen for the convalescent station is too near the edge of the mountain, and consequently is within the influence of exhalations and vapours arising from the plains; for the sanatorium immediately overhangs the low and unhealthy plains of Sylhet. The table-land of the Casia mountains extends 40 miles to the northward to Nunklow, where there is another precipitous descent to the plains, and a climate as obnoxious to fogs and heavy rain as Chirra; but about midway between these two places, at Moyrung, there is less rain, the

atmosphere is generally much drier, and not so subject to the prevalence of fogs. The elevation is greater, and from all that is at present known of that place, there is reason to believe that the station would be found much healthier than Chirra Punji, and better adapted in every respect for the recovery of invalids.

The hill stations among the north-western mountains, including Landour, Soobathoo, and Simla, from being more elevated have a colder climate than Chirra Punji; and being within the influence of the higher ranges of the great Himala mountains to the northward, are liable to abrupt and considerable changes of temperature. Even at the most salubrious of these stations, namely, Landour, there are seasons when a mild air from the plains in the day time, is followed by a cold wind from the north at night, and these changes must often be experienced in consequence of the vicinity of the lofty peaks covered with snow. Simla and Soobathoo have a colder, but according to the registers to which I have had access, a more variable climate, and a winter too rigorous and severe for many descriptions of invalids. At the latter place, storms of rain, hail, and sleet occur frequently in January, February, March, and sometimes in April. In June, 1829, there were 15 rainy and stormy days at Soobathoo. The temperature of the air for that month was, highest $95^{\circ}8$, lowest 61° . mean maximum of the month, $84^{\circ}4$, mean minimum 72° . In May, of the same year, the thermometer was highest $94^{\circ}3$, lowest $57^{\circ}5$. Mean maximum of the month, $88^{\circ}7$.

Mean minimum $69^{\circ}8$; and there were six stormy days, with rain and hail, in the month; according to the Registers published in the *Gleanings in Science*. In the north-western mountains, the greatest daily alternations of temperature appear to occur during the hot season, which is just the reverse of what occurs in the lower provinces of Bengal. The following abstract of the thermometer in the air at Landour*, for one year, shows the same fact, but a series of complete meteorological tables for several years would be requisite to authorise us to state that it is generally so at those stations. January, max. 47° , min. 31. February, max. 48° , min. 31. March, max. 64° , min. 40. April, max. 76° , min. 44. May, max. 85° , min. 60. June, max. 86° , min. 60. July, max. 70° , min. 61. August, max. 72° , min. 59. September, max. 69° , min. 54. October, max. 70° , min. 51. November, max. 62° , min. 42. December, max. 50° , min. 30.

The great changes of temperature at stations within the influence of the Himala mountains, are perhaps better shown by the following abstract of observations for one year, made at Lohooghat, in the Province of Kumaon, latitude $29^{\circ}23$, N. longitude $71^{\circ}56$, E.; at an elevation of 5,800 feet above the level of the sea; from the register kept by A. K. Lindsay, Esq. and bearing all the evidence of that gentleman's usual accuracy and precision. The difference between the highest and lowest register of the thermometer in one month, is above 44 degrees.

* Journal of the Asiatic Society, vol. i. p. 195.

Abstract of Meteorol. Register for one year at Lohooghat.

	Lowest temp. observed	Highest temp. observed	Mean of daily minima.	Mean of daily maxima.	Monthly mean temp.	Remarks.
May, 1830.	49°25	79°75	58°30	74°88	66°59	More or less rain fell on 12 days, generally as thunder-showers, with squalls and hail; at intervals the weather was warm and clear with W. breeze.
June,	51°5	81°3	61°66	75°17	68°41	Rain on 22 days—early in the month thunder-showers, afterwards heavy rain for days together; very little sunshine.
July,	63°7	76°7	66°09	72°6	69°34	Rain on 29 days, temp. very uniform, occasional thunder, very little sunshine.
August, ..	61°6	74°9	65°67	72°53	69°10	3 days in the middle and 3 at the end of the month without rain, in other respects very similar to last month.
September,	54°3	77°1	61°52	73°13	67°32	Weather as above for first 21 days, after that date, N. W. wind and clear, the thermometer showing considerable daily range.
October, ..	50°5	77°8	54°25	72°1	63°17	No rain, cold gradually increasing at night, but still hot during day.
November,	35°8	69°2	42°12	62°39	52°25	One thunder-shower, otherwise fine weather; hoarfrost nightly, and ice towards the end of the month.
December,	28°2	62°3	36°7	57°88	47°29	Fine weather throughout, ice and hoarfrost every night, ice on running streams towards end of the month.
1831.						
January, ..	27°8	60°5	34°11	56°23	45°17	Fine throughout, hard frost every night; clouds formed daily on the last 4 or 5 days of the month.
February,	28°8	55°6	36°65	50°5	43°57	Unsettled weather, rain, hail, sleet, and three falls of snow; on the 15th snow upwards of 1 foot deep, very little sunshine, and consequent low temp. during afternoon.
March, ..	26°8	70°4	43°09	61°6	52°34	Rain with thunder on 9 days, very great changes of temperature and weather; warm spring weather towards the end of the month.
April,	40°2	78°3	50°17	68°48	59°32	Early in the month a few thunder-showers, hoarfrost on the 14th; last 8 days of month clear and warm, with strong W. winds during day, hail and thunder on 30th.

Mean annual temperature of the air at Lohooghaut, $58^{\circ}65$. "The observations for the minima, were taken in the open air before sunrise, those for the maxima, between 2 and 3 P. M. in an eastern veranda, to which the external air had free access."

"The following fact, tends to confirm the accuracy of the foregoing calculation, from which the mean annual temperature has been deduced. In June, the temperature of the air being 70° , that of a sheltered spring was 61° . In January, the temperature of the air being 49° , the water of same spring was 56° ; taking it for granted that the water was equally affected by the heat of summer and the cold of winter, the mean of the two observations should approximate to the mean temperature of the place, it is in fact $58^{\circ} 5'$."

"The anomaly, of February being the coldest month, is to be accounted for by the constant stormy weather, the falls of snow, and great want of sunshine; for days together the thermometer never rose above 46° . The old natives say that more snow fell this winter, (all in February,) than any winter for 15 years. The circumstance of March 1st, being the day on which the greatest cold was observed, may be laid to the account of the storms of the preceding month. The mean of daily observations at sunrise, in January 1830, is $34^{\circ}11$, and for January 1831, the same exactly to the second place of the decimal; while the mean of observations at the same time for the months of February of these two years vary nearly $7\frac{1}{2}^{\circ}$ ($44^{\circ}01$ and $36^{\circ} 65$). If February was colder than on the

average of years, it is probable that both October and April (in the above abstract) were hotter, so that the mean of the twelve months may be believed to be pretty near the mean annual temperature of the place."

The estimation in which several of the Hill stations ought to be held, as favorable residences for adults in good health ; or for the children of Europeans, born in this country, and whose constitutions are unimpaired ; may admit of a consideration somewhat different from that which is justly attached to the climate of the same places, as a resource for the eradication of disease.



THE NEELGHERRIES.

The Sanatorium at Ootacamund, in the Madras Presidency, is so important a resource for convalescent Europeans in this part of India, that I am desirous of noticing in this place the peculiar nature of a climate, which by all the accounts we have yet received, appears more nearly to resemble that of the finest parts of the South of Europe, than any other station in India. Europeans who are obliged to seek a restoration of health, by change of climate, and for whom a long sea voyage is not requisite ; may go to the Neelgherries, and return, at less than half the expense incurred by a voyage to the Cape ; and if absent from Bengal for 18 months, they may count on living for 16 months of that time, in a climate

not inferior to that of the South of England at the finest season of the year.

When we speak of the resources which the hill districts afford, for the restoration of health of the European inhabitants of Bengal, every one much acquainted with the different parts of India, will be reminded of the Neelgherry mountains, in the Mysore country, forming that part of the great western range of ghauts, which lies between the 11th and 12th degrees of north latitude; and the 76th and 77th degrees of east longitude; being within 40 miles of the sea on the westward, and about 330 miles, travelling distance, from Madras.

These mountains possess a climate so much superior to any of the hill stations in Bengal, already mentioned, and are during part of the year so readily accessible from Calcutta, that the settlement at Ootacamund, and the mountain stations in the vicinity, have of late years become objects of the highest interest, to the European residents in the lower provinces of Bengal. The efficacy of the climate of the Neelgherry Hills in restoring the health of those who have recently suffered from acute disease, is now duly appreciated here. The climate of those elevated regions not only has the advantage of being the most uniform temperature in India during the whole year, but the rainy season, (which in those hills generally continues from the middle of June, to the end of August,) is found not to be an unhealthy period of the year there, the temperature at that

season being low, and seldom varying above four or five degrees in the 24 hours. The elevation of 7,400 feet above the level of the sea, insures a low temperature; and the position of Ootacamund at the centre of the table-land, (or rather numerous ridges running in a parallel direction,) and nearly ten miles from the brink of the descent into the plains, renders it less liable to sudden changes of temperature, or fogs, and other unfavorable effects incidental to elevated stations which overhang the plains. With a mean annual temperature below 60° , and average annual range of 17° ; the extreme annual range of the thermometer at Ootacamund does not exceed 39° . The lowest observed in these hills is 28° Fahrenheit, and although the temperature of the air in the winter nights is in general above the freezing point, water in a cup placed on the ground, freezes almost every night during the three cold months. It is much colder at night, in the valleys between the elevated ridges than on their summits. The annual quantity of rain is less than 41 inches, and the climate is in the highest degree congenial to the European constitution. There are occasionally fogs and transient showers in September and October; but those convalescents who experience any inconvenience at that period, can if requisite, change their residence for a time, to some other station in these hills. Mr. D. S. Young's account of the climate of the Neelgherries, when the station was first occupied as a convalescent depôt, and Dr. Baikie's statement of the result of

several years' experience in that delightful climate, contain all the information that is requisite for those who are obliged to try that climate for the recovery of their health. Convalescents who have recently suffered from any visceral affection of the lungs, or liver, must nevertheless be warned, that even at the Neelgherries, abrupt transitions of temperature are in their cases liable to be attended with some hazard, and therefore they ought on their first arrival there, to take every precaution to guard against the effects of sudden transition to a low temperature.



TROPICAL HYGIENE.

The health of Europeans in India, depends so much on the care which they take to live temperately, to mitigate the effects of the great heat, and to counteract the consequences of sudden alternations of temperature, during the early part of their residence in this country ; that a few words may be permitted on a subject concerning which most people are able to form a correct judgment, as far as relates to their own constitutions, after having been a few years within the tropics ; but on which, those newly arrived are liable to adopt very erroneous opinions, at the time that they are most obnoxious to the diseases of the climate, and consequently when they stand in need of the most judicious management : for on their first arrival, they can neither continue with safety to follow

their usual European habits of living, nor can they altogether adopt the customs of those who are long resident in the climate. Of any given number of Europeans who arrive in India, a much greater proportion dies from disease in the first two years, than during any similar period subsequently ; and permanent ill health for many years after, often depends on the want of proper care at first. The principal things to be attended to for the preservation of health in India, are, to keep the mind tranquil, but occupied, and the body cool ; to avoid exposure to the sun, and to guard against the effects of sudden transitions of temperature.

The majority of Europeans in this country, eat more animal food, and drink a great deal more wine daily, than the wants of their constitutions actually require ; consequently, the frequency and severity of the prevailing diseases may be ascribed in no small degree to hypernutrition, and habitual excess of stimuli. Animal food once a day is sufficient, and to those whose circumstances permit them to live as they please, and who wish to preserve good health, I would say, let your breakfast consist of tea and bread, and an egg ; Tiffin of bread and recent fruit, or raisins, and some cool water ; or coffee and toast ; Dinner, one kind of meat, with vegetables and bread, and one other dish ; for instance, those who eat meat and pudding should neither take soup nor fish. Curried chicken, or curried kid with rice, is not objectionable for those who will be satisfied with that dish alone.

Observance of the above rule of avoiding variety of food at one meal, is the best mode of obviating excess in quantity. It does not very often happen that more food is taken than is good for the health, provided variety be avoided; and I believe that very little harm will be done by occasional change of diet, if we adhere to the rule of moderate quantity, and only eat one or two kinds of food at the same meal. If neither wine, beer, nor spirits were drank by Europeans for the first two years of their residence in India, a much larger number of them would preserve good health. A great deal of the languor and exhaustion which is felt in the hot season, depends on disorder of the system, and a degree of venous congestion in the brain, and spinal canal, arising from drinking wine; and though the absolute quantity of wine which produces those symptoms, be not in general accounted excessive, the relative effects are at that season often injurious. Let those, who being in good health, feel much languor in the mornings in the hot weather, take their usual food, and drink only water for ten days, using tepid water to wash the body early in the morning, and they will be able to judge of the very transient comfort arising from wine, even in moderate quantity. It is not expected that the above rules will be generally adopted; but as long as we find there are not many who will persist in living according to the rules of temperance, so long may we be sure that a great proportion of Europeans in India will be very unhealthy, and that a large

number will die before they are five years in the country.

There are a few constitutions, which require, daily, a small portion of wine ; but they are few in number, and the quantity of wine absolutely requisite to have a beneficial effect, and to produce all the good which wine can afford, does not exceed a pint of claret per day. The dinner-time is not unimportant in hot climates. It cannot be conducive to health, to take the principal meal of animal food, and at the same time to drink wine at that time of the day when the heat is greatest, especially if much active exercise, and urgent occupations must be followed soon after eating. Natives do not eat their principal meal, during the heat of the day. Most people who are not obliged to use much exertion after dinner, find the advantage of dining at three or four o'clock, if they eat no tiffin. Bathing, and frequent changes of dress according to the season of the year, and the degree of perspiration, are subjects on which every one will follow the plan which they find most conducive to comfort, and that, indicates the daily use of the bath, or what is more commonly adopted in Bengal, having several jars of water poured over the body. Those who are subject to any affection of the lungs or liver, or to an irritable state of the bowels, will find it conducive to health *always* to use tepid water for washing the body. Persons who suffer much from languor, oppression, and exhaustion, during the most distressing part of the hot wea-

ther, will be surprised to find that they derive great relief from their sufferings, and are much refreshed, by washing the body twice a day, in water that is two or three degrees warmer than the atmosphere.

Almost every European within the tropics finds at times difficulty in maintaining a regular state of the bowels, and many are obliged to have frequent recourse to aperients of some sort, which, however irksome, is better than permitting the continuance of constipation. Temperance in habits of living, early rising, and exercise, tend greatly to keep up a regular state of the bowels. All Europeans whose business confines them to their desk at an office, during the day, and whose occupations do not oblige them to undergo active exertion, at some period of the 24 hours, should, if their circumstances permit, ride on horse-back every morning; and those having similar occupations, but unable to keep a horse, should walk out at daylight. There are a few individuals, who find that active exercise early in the morning, produces a degree of feverishness and languor, which continues all day, and is attended with impaired appetite, and incapacity to attend to their usual business. It is possible that a few persons, may for those reasons be unable to take morning-exercise, but the greater number who have said they felt early rising injurious, have also acknowledged, that they ate and drank more than the wants of their constitutions actually demanded. So much comfort is ex-

perienced after the effectual use of aperient medicines, that purgatives are probably sometimes taken oftener than is requisite: the evil that is caused by the error of keeping up for a time, a slight degree of habitual purging, is trivial, compared with the bad consequences, and ruined constitutions arising from the injudicious practices of those who, not content with regulating the state of their bowels, resolve that they will by frequent use of calomel, also regulate the functions of their livers, according to some rule which they imagine infinitely superior to the ordinary course of nature. These persons have invariably the most wretched health: they acknowledge that the stomach and digestive organs are in the lowest stage of debility, the muscles of the limbs and every part of the body weak and attenuated; at the same time that they find the action of the heart weak, and even the energy of the brain and nervous system so much impaired, that they cannot readily accomplish their ordinary business; still they expect the action of the liver and biliary secretion to be carried on in the same way that is supposed to be consistent with the healthy constitution of a robust English farmer in a cold climate. It requires no little address to make patients of the sort now alluded to, acknowledge that it would not be more unreasonable to expect that in their debilitated condition they should be able to carry a sack of coals as readily as a London porter does, than it is to expect their liver to perform its functions as in robust health, when

every part of the constitution is subdued and weak. I will not speak of the practice of medical men, because I hope at the present day, they employ mercurials and all other powerful remedies with discretion: but the system of domestic dosing with calomel, is in many cases too much followed. I am frequently applied to every hot season, by pale emaciated and unhealthy men, long resident in India, who have been taking calomel at nights and purgatives in the mornings, because their stools are disordered with "vast quantities of black filthy bile," which is not diminished by persistence in their plan of calomel and purgatives; at the same time that they are eating meat every day, and drinking plenty of claret, to "support their strength." Such patients are generally advised to omit all medicine except a compound rhubarb pill at night, and if requisite 20 or 30 grains of compound powder of jalap in the mornings, to eat no vegetables, and drink no claret: but to eat a moderate dinner of meat and bread, (and some rice if they like it,) and to drink sherry and water. In less than ten days the majority of these invalids usually return to me, stating that they are worse than ever, as their livers are entirely inactive, their stools being very pale or nearly white, and they are satisfied that without some calomel they are not likely to exist long. At last these poor people find that they are exhausted in constitution, fretful in mind, and having undertaken a business which they do not understand, (namely the task of regulating the functions of

their livers,) they are not likely to be very successful. Some of these patients, who can be persuaded to relinquish the plan of perpetually vexing their livers, and injuring their constitutions by the habitual use of calomel, gradually get into a better state of health, by taking exercise, keeping the bowels free, and following such a system of diet as is proper to invigorate the constitution. The domestic plans of regulating the function of pale and delicate children's livers, and keeping their "biliary secretion in fine order, by the frequent use of calomel," are neither more successful, nor less barbarous than the practice above alluded to. Although the absolute necessity of employing calomel in the treatment of some stages of many of the acute diseases of children in this country is acknowledged; it is lamentable to observe the vast injury that is inflicted on numbers of these poor pale unhealthy creatures, by the calomel-discipline intended to rectify the state of their biliary secretion; at the time that their systems are suffering from extreme debility and anæmia, and when the power of the constitution to form healthy red blood, is still farther impaired by the use of mercurials.

Comfortable rest at night is essential to health in all climates, and particularly in India. We soon find that heat equal to 90° , in a breeze, or current of air, is more comfortable than a temperature of 80° in a stagnant atmosphere; as the air about our bodies soon becomes heated, and being a bad conductor of caloric, it is oppressive, until changed by the

breeze, or by the action of a punkah. It is much safer to trust to the latter at night, on account of the frequent changes of temperature and humidity which are liable to occur; therefore I advise those who can afford the expense, to sleep under a punkah.

Little need be said about clothing, feelings of comfort warn us that our clothing in India should be very light, and changed very often. At the changes of seasons we ought also, promptly to adopt flannel or other woollen clothes, so as to counteract the effects of sudden depression of temperature, and abrupt transfer of the circulation from the surface to the interior organs. So important is it to maintain an equable state of the warmth and circulation of the skin, that many people who constantly sleep under a punkah, find it comfortable to have a thin flannel sheet over them, for the temperature is almost always lower at 2 o'clock A. M. than at other times, and many diseases may be ascribed to the sudden change of temperature at that hour, when the transient coolness of the atmosphere, especially in the hot season and rains, makes us sleep so soundly that we are not aware of our danger when it exists.

I should not have entered into these details, relative to the domestic care of the health of Europeans on their first arrival in India, were it not certain that the health of all who arrive in this country is preserved or sacrificed, nearly in the proportion as the individuals are careful to take every means of moderating the effects of the extreme heat of this climate,

and counteracting the consequences of abrupt transitions of temperature. The success of our attempts to avert disease during the first two years, in a great measure assures us of the degree of good health which we may hope to enjoy afterwards.

There are two subjects, which strictly speaking are rather connected with the commencement of disease, than with the rules for the preservation of health ; but which are in point of fact, so often of vital importance, as connected with the best rules for the preservation of life, that I will allude to them here, because I think they will be more likely to attract attention, than if mentioned in treating of the diseases to which they might be especially referred. These are, the precautions necessary on accession of the premonitory symptoms of cholera, and of fever. Many lives are sacrificed to the idea that a watery purging indicates a redundancy of bile, and therefore that an active purgative is *the first thing to be used*. This is too often a fatal error ; the *first thing to be done*, in case of spontaneous purging, if more than two watery stools are voided in two hours, is to moderate the purging, and remove the irritability of the intestinal canal, by a grain of opium with five grains of blue pill, and if requisite, to repeat double the dose in an hour. A tea-spoonful of laudanum in a small quantity of brandy and water will often answer the same purpose. After these remedies have had effect, it will be necessary to clear out the bowels and obviate any tendency to fever or inflammation

that may exist. The worst consequences that can arise from this plan, even if employed in inappropriate cases, is, that the patient may suffer from a headache, or slight feverishness, which complaints are in general easily manageable, whereas the collapse succeeding to a prolonged watery purging, is too well known to be generally very unmanageable. The other subject to which I would direct attention, is a custom generally followed by English people, namely, that of taking chicken-broth when they find themselves feverish. I hardly know anything so likely to allow the silent and insidious progress of fever, to go on until dangerous local disease is established. When the slightest degree of fever exists, there is no occasion for animal food, or any thing made out of animal, or chicken flesh. In such cases, perfect quiescence, and a few spoonfuls of cold water, or tea, every two or three hours: a mild purgative once a day, and living on tea and bread for a few days, would prevent many of the fevers which occur in this country, and are too often cultivated by chicken-broth until the patient is in a state of danger, after which the most diligent employment of the strongest remedies becomes requisite. I might here employ the words which that eminent and scientific physician Dr. Southwood Smith has used, when urging caution in the diet ordered for convalescents after fever. *It can be of little consequence to the patient whether he die of malaria, or of chicken.*

DISEASES OF BENGAL.



CHAP. I.

DYSENTERY.



INDIAN Dysentery may be defined in general terms ; an inflammation of the mucous membrane of some part of the large intestines : frequent calls to stool, the dejections mixed with blood and mucus ; attended with griping, tenesmus, and more or less pain, and tenderness of the abdomen when pressed : the natural evacuations at some stages, and often at a very early period of the disease, suppressed : ardent pyrexia frequently absent. There is so much variety in the general or constitutional symptoms, and in the nature of the local affections, at the commencement, and during the progress of the disease ; in cases which have still all the essential characters of dysentery, that I would rather refer to the practical details which will be found in this Chapter, than pretend to draw up a concise definition applicable to all the varieties, and all the stages of this formidable malady. Dysentery may be generally looked on as a se-

vere disease in India ; a small proportion of the cases that occur in this country are trivial, and even those which at their commencement differ only in a slight degree from common diarrhœa, are occasionally found, suddenly to take on the most acute symptoms. In any given class of people, it is a much more rapid, and more fatal disease, than that which we designate by the same name in England.

The most remarkable circumstances, connected with the dysentery of Bengal, are, the extensive local inflammation of the mucous membrane of the great intestines, coeval with the commencement of the disease ; the early existence of ulceration, and in many cases a tendency to sloughing of that membrane : while the degree of pyrexia and other constitutional symptoms, are for the most part, incommensurate with the existing local affection ; the general disorder, being apparently infinitely less than is often observed, attending a much slighter degree of local disease in other climates. In stating the frequent absence of the ordinary symptoms of ardent fever, in many of the most severe cases of Indian dysentery, we must not deny that some pyrexial symptoms exist in most of those cases ; for we find thirst, anxiety, restlessness, rapid pulse, and copious perspirations, some of which may be considered as signs of fever, though little or no morbid heat may exist at the same time. Dysentery is sometimes complicated with the prevalent fever of the season, namely, the peculiar remittent fever of the Bengal

rainy season in August, September, and October ; the intermittent in November ; and sometimes a degree of inflammatory fever in the hot-season. In fact I might say that though dysentery is comparatively a rare disease in the dry hot season, (except among individuals who have been subjected to some particular exposure to alternations of temperature, or casual rain,) still when the disease does occur at that season, it is more frequently attended with pyrexia ; and it appears that the symptoms of ardent fever, as well as vomiting, are more frequently remarked at dry hot stations, than in the lower provinces of Bengal.

We find dysentery occurring here at all seasons of the year, but it is more frequent and more severe during the rains, and at the commencement of the cold weather ; or from the beginning of June to the end of December. A predisposition to the disease in autumn is supposed to be gradually produced by the changes which the constitution undergoes in the previous hot-season ; though very severe cases are met with every year, among persons who have recently arrived, after a quick passage from Europe. In fact Europeans recently arrived in India are very liable to the severer forms of acute dysentery. Considerable and abrupt diurnal changes of temperature, great heat with humidity, and the transition from the hot to the cold season appear to be the most frequent exciting causes of the disease in Bengal. Exposure to the influence of these causes is liable to

be so much increased during intoxication ; and the unfavorable tendency of local inflammations is so much aggravated when occurring subsequently to habitual intemperance, that we are probably apt too often to ascribe the origin of dysentery, exclusively, and without sufficient reason, to this cause : for we find the disease occurring very frequently in Bengal, among persons of the most exemplary temperance and regularity in their habits of living. Bad water*, and unwholesome food, have appeared occasionally to give rise to the disease ; and then numbers of persons exposed to these causes, have fallen ill about the same time.

Some practitioners assert, that dysentery in India is generally, if not always, dependent on disorder of the liver. It is true that ulcerous disease of the great intestines, and abscess of the liver, are often found existing in the same subject in this country ; but the general relation of these diseases, as cause and effect, may be reasonably questioned : for we do not

* When an extensive inundation of the sea has laid waste a large extent of some of the maritime districts, and filled the tanks, the poor natives are much distressed and obliged to go a great distance for fresh water. The next hot-weather generally dries up the salt-water in the tanks ; and when they are again filled by the succeeding rains, the natives, from their indolence, apathy, and pressing necessities, drink the water strongly impregnated by the saline deposit on the sides of the tanks, and then a destructive dysentery rages in a whole district, and carries off many of those who had escaped from the inundation, and succeeding famine.

find on dissection, any marks of disease in the liver, in the majority of Europeans who die of dysentery ; moreover, dysentery is observed to be very frequent and very fatal among the natives of Bengal, while affections of the liver are exceedingly rare among these people. The greater number of well authenticated facts bearing on this question will not authorize us to ascribe the disease, generally, to functional disorder of the liver. The assumption of functional disorder of the liver, as the ordinary cause of dysentery, rests on very equivocal foundation, and must be admitted with great caution. If hepatic disorder were in the absence of any direct proof, acknowledged to be the ordinary cause of dysentery, it would open the way to fanciful speculation, and a corresponding practice equally erroneous in principle : therefore, in cases of such dangerous and rapid disease, involving in many instances, the question of life or death of the patient, our safest plan will be to admit only the best established evidence of the existing morbid condition, for the foundation of our opinions, and guidance of our practice. The Hakeems, or native physicians of Bengal, assert that dysentery arises generally from the same causes as fever, viz. high temperature and humidity ; exposure to changes of weather ; fatigue, and privations.

We generally find the ordinary dysentery of Bengal, to begin as a common purging ; the evacuations differing little from the character of healthy stools, except in being copious and fluid ; uneasiness and

gripping pains in the belly soon succeed, and are followed by tenesmus: blood with mucus is observed in the stools, often forming the greater part of them; and pressure over the course of the colon causes pain. There is anxiety and restlessness, the pulse is little affected, the tongue is often moist and white, occasionally it is quite clean and moist; hardly any pyrexia exists, though the thirst is commonly urgent. The severity of the symptoms increases gradually, but sometimes very rapidly, until the evacuations consist entirely of blood and slime, or of a bloody water, like the washings of raw meat. In such severe cases of only a few days' duration, masses of sloughing membrane are voided.

Sometimes dysentery comes on suddenly, the most violent symptoms arising within 36 hours, and not preceded by any previous evident disorder; pure blood being poured out from the bowels in large quantities, at an early period of the disease, which is attended with little distress, except the disturbance from frequent calls to rise to stool. In three or four days, the stools have a horrid odour resembling putrid blood, it has been compared to the smell of putrid flesh in an anatomist's macerating tub; and there is a foetid cadaverous exhalation from the patient's body. This odour of the stools, in cases where there is a rapid weak pulse, and hickup, is almost always a sign of fatal termination. These extreme symptoms are often found to depend on numerous distinct circular ulcers in the colon, with elevated

thick and abrupt edges, which are in a sloughing state ; while the muscular fibres of the intestine are apparent at the bottom of the ulcer, as if dissected clean. The disease seems to commence so suddenly, that we might suppose an extensive affection of the mucous membrane of the colon to take place, much in the way that eruptive diseases of the skin arise, and ulceration follows ; when we have opportunities of examining subjects who have died from accidents, while laboring under the early stage of dysentery, the pustular appearance at some portions of the intestine is occasionally very conspicuous. The sloughing edges of ulcers often pour out copious discharges of blood, so that the patient dies from the hemorrhage and irritation, in four, five, or seven days. Notwithstanding this dreadful state of disease, there is often little or no ardent pyrexia, the tongue does not shew much sign of disorder, the pulse is frequently soft and compressible, the skin cool, and perspiring freely ; and pressure on the belly gives little uneasiness until we examine with care over the cœcum, and then the patient almost always feels pain.

In other cases, from the very commencement of the disease, the desire to go to stool is incessant, and attended with urgent straining while on the commode, the patient being obliged to rise ten times in an hour, having very scanty evacuations from the bowels, which consist of slime and blood, without any feculent appearance ; the pulse is rapid, often at the same time small and hard. An uneasy sensation above

the pubis, pain in the bladder, and suppression of urine, frequently attend the worst cases of this sort ; these symptoms arise from irritation extending to the lower portion of intestine, contiguous to the fundus and back of the bladder. Anxiety and restlessness increase early in the course of this form of the disease, which in its latter stages is often attended with more pyrexia than the cases already described ; and the patient dies miserably emaciated, between the eighth and twelfth day. In some protracted cases, which are approaching a fatal termination, the tongue becomes covered with brown mucus, or it is dry, and the teeth loaded with sordes ; delirium and low fever existing at the same time.

The above symptoms depend on the different stages of inflammation, ulceration, or sloughing of the mucous membrane of the great intestines, and the consequences thereof. Dysentery may occur during various morbid states of the constitution, such as the scorbutic, or the splenic cachexia ; and may be attended by various coexistent diseases.

On dissection we find the following appearances :

1st. Inflammation, ulceration, and at times sloughing or mortification of the inner coats of the intestines, principally affecting the cœcum, colon, and rectum.

2nd. Morbid vascularity of the mesocolon, mesentery, and omentum ; adhesions of the omentum to the parts adjacent, and of contiguous portions of intestine to each other. The latter usually only happening when ulcers of the intestine have nearly per-

forated through the whole of its coats, and a breach that would admit of effusion of fæces into the abdominal cavity, is thus prevented.

3rd. The glands of the mesentery and mesocolon often enlarged, sometimes inflamed, and more rarely suppurating; the portion of the intestine corresponding to the situation of the affected gland, usually contains a deep and large ulcer.

4th. The omentum is occasionally found adhering to these diseased glands, forming a band that may strangulate a portion of intestine, and cause death.

5th. The ulcerations within the great intestine are generally most numerous, and most extensive at the cœcum, and first portion of the colon: the valvula ileo-colica has in some cases been found quite destroyed by ulceration, and the lower end of the ilium has formed an intus-susception into the cœcum; and becoming there strangulated, has caused death. In a few more fortunate instances of intus-susception, the patient recovers. The lower portion of the ilium descends into the cœcum, and forms a circumscribed tumor in that region, attended with suppression of stools, and rapid pulse; which prove the obstruction of the canal at that part: the strangulated portion sloughs off, after adhesive union of adjacent parts has taken place, so as to maintain the continuity of the canal; and then stools are again passed, together with masses of slough, or entire portions of intestinal tube, and the patient slowly recovers. In eight years I can mention five cases of this sort, two of

which have recovered. In reference to these cases of intus-susception, where a portion of all the coats of the intestinal canal have been separated and voided per anum, in so complete a state that they may be recognised in the preserved specimens of intestine : they are not likely to be mistaken for those thin films forming a tube of some inches in length, which are occasionally voided ; these may be either portions of mucous membrane alone, or what I consider more probable, tubes of coagulable lymph thrown out by an inflammatory process, analogous to that which takes place in croup. No man conversant with pathological anatomy can mistake one of these morbid specimens for the other. All the portions of complete intestinal tube which I have seen, that have formed an intus-susception, and after sloughing off, have been voided per anum ; have been inverted, hence I conclude that the upper portion of the intus-susception has been separated before the lower. I do not assert that portions of large intestine are never invaginated, and separated by sloughing, but I have not seen any specimen which appeared to be a portion of the large intestine.

6th. The right portion of the omentum is frequently found adhering to the cœcum, and this morbid attachment gives rise to symptoms that are liable to be mistaken for hepatic abscess. When these adhesions exist, we find that irritation or distention of the cœcum, or pressure over that part, produces pain at the transverse portion of the colon ; which is drawn

downwards by this attachment to the part most diseased : the patient cannot stand erect, nor extend the body when he lies down, without feeling some pain, which is referred to the region of the liver : the same pain is excited by raising the right arm above the head ; there is occasionally cough, and sometimes a pain in the right shoulder, rendering the diagnosis very difficult*.

If the practitioner be impressed with the belief that dysentery is generally dependant on an affection of the liver, he will find so many reasons to confirm his suspicions in cases of the sort now described, that he may administer remedies with a view of curing a liver disease that does not really exist, while he pays comparatively little attention to the dysentery of which his patient may be actually dying. I am anxious to direct particular attention to this circumstance, and I believe it will be found, that if the dysentery have existed in an acute form, for a few days only, and have arisen suddenly, unattended by tumefaction or hardness in the region of the liver ; we ought not without strict inquiry to suppose that the pain in the side depends in all cases on liver dis-

* Staff Surgeon Marshall has stated, that the most frequent adhesions of the omentum are to the cœcum ; and Mr. Annesley says, that the omentum is often adherent to the brim of the pelvis : but neither of these authors has adverted to the direct influence of those adhesions, in causing a pain at the epigastrium, or at the right portion of the colon and edge of the right false ribs, which is liable to be mistaken for liver disease.

ease. A pain in the right side, attending a diarrhœa which has gradually assumed a dysenteric character; especially if it occur in a person who has been suffering from daily returns of fever for several weeks, with frequent pulse and gradually increasing emaciation; is more likely to be the attendant on liver abscess. We may feel the less disposed to doubt the nature of a case of this sort, if the above train of symptoms be attended with any fulness in the region of the liver; or with more tension and resistance of the right rectus muscle, than of the left, when we press carefully over those parts.

7th. In a few instances, the size of the intestine is increased by thickening of its coats, so that when a transverse section is made, the canal of the colon stands up like a thick leathern tube; the interior of the intestine being covered to a great extent, with numerous large ragged and deep ulcers, in the intervals of which, the mucous membrane is partly destroyed, and hanging in shreds. In several of these cases, I have observed the cœcum, and lower portion of the ascending colon, nearly covered with a thick layer of coagulable lymph, deposited under the peritoneal coat of the intestine, and in the right iliac fossa, beneath the gut, extending a considerable distance along the iliacus muscle; in some instances, an unusual quantity of fat has been found at the same part, mixed with this inflammatory exudation.

8th. When the disease has been protracted, the whole of the great intestines are sometimes found con-

tracted in diameter, resembling a cord ; and numerous small superficial ulcers are observed on their interior. In several of these cases, the internal surface of the cœcum, and four or five inches of the colon, are of a fleshy appearance, and lurid red color, inclining to brown ; as if from a growth of granulations. I have met with but few cases of this sort, and when this condition of the cœcum has existed, a smaller space at the sigmoid flexure of the colon has exhibited a similar appearance. The patients have been much emaciated, with flat retracted belly and dry skin, the tongue of a slate color, glossy, and morbidly clean, as if skinned ; the stools, an opaque dirty-brown water.

9th. Sometimes we find in the whole course of the colon, not above eight or ten large deep ulcerations, with sloughing, thick, abrupt, raised edges ; surrounded by an extensive thickened base, into which, sinuses and cavities penetrate, and undermine the edges of the ulcers ; these appearances have reminded me of the foul ulceration at the centre of a small carbuncle. I have seen several patients die, with not more than six or eight of these spots of disease in the colon. These persons had a flushed face, restlessness, and continued symptoms of fever ; which were not easily subdued by remedies. They seemed to die from protracted irritation, without the ulcers having penetrated through the whole of the coats of the intestine. The patients with this sort of disease, were generally recent arrivals from Europe, of light complexion, and not in affluent circumstances.

10th. Contraction of the sigmoid flexure of the colon, and thickening of the coats of the intestine at that part, for the space of six or 8 inches. This morbid condition occurs frequently in chronic cases, and is often the principal cause of a protracted disease. When contraction and much thickening of the sigmoid flexure of the colon exist, there is very often some enlargement of the cœcum, and a cluster of enlarged glands may be felt under the last portion of the ilium, extending from thence up on the right side of the lumbar vertebræ.

11th. In those who die of dysentery, the last three or four inches of the ilium adjoining the cœcum, are generally affected with superficial ulcerations and roughness, and in some cases the mucous membrane of this portion of the intestine is easily peeled off. With this exception, we rarely see any disease of the small intestines, on the post-mortem inspection of dysenteric cases; unless we look to the dysenteric termination of protracted fevers, in which, ulceration of the small intestines frequently exists, and may be deemed one cause of the tardy and imperfect convalescence after fever.

12th. In the post-mortem examination of subjects who have died from other diseases, long after protracted suffering from dysentery, from which disease they had recovered; we often find the cellular structure at the root of the mesentery and mesocolon, and across the bodies of the lower lumbar vertebræ, void of its usual elasticity and pliability, to a certain

degree indurated and in many cases quite void of fat. This change may be considered the remote effect of the previous inflammatory condition of those parts; an interstitial exudation of coagulable lymph having taken place in the course of the dysentery, as is commonly the result of other acute inflammations, and being afterwards absorbed. If chronic pains in the loins and lower extremities, ever depend on this morbid condition, there would be little hope of benefit to those pains, from the remedies commonly advised for rheumatism.

Seeing on dissection, such local disease as the result of severe cases; we can have no doubt of the nature and seat of morbid action, in those of milder description, and of the condition of the parts affected at an early period. The whole history of idiopathic dysentery in Bengal, indicates strongly the existence of more or less local inflammation; and according as that is promptly and fairly treated, the result is favourable, or fatal.

TREATMENT.

The cure of severe cases of acute dysentery in plethoric patients, should be attempted, by the early, free, and repeated use of the lancet; with the aid of every other means, by which we can subdue local inflammation and pyrexia. It will in general be requisite to bleed from the arm, two or three times,

at the interval of 8 or 12 hours, and to take as much blood each time as shall decidedly reduce, and permanently keep down any frequency and hardness of the pulse that may exist. And 12 or 16 leeches should be applied soon after each general bleeding, to that part of the belly, where pressure causes the greatest pain. In most cases it will be proper to continue this repeated abstraction of blood, as long as pyrexia exists; or pressure on the belly gives pain; or there is any blood in the stools. A tepid bath should be used once a day, and the best time for it, will be two hours after the leeches are removed. With this system of depletion, a dose of castor oil is given an hour after the first blood-letting; and when it has operated freely, the patient is made to take six grains of the powder of ipecacuanha, with four grains of extract of gentian, and five grains of blue pill, mixed and divided into three pills. These pills are repeated every night and morning; and 20 grains of powdered jalap, with 40 grains of cream of tartar, are given daily at 11 o'clock in the forenoon.

In ordinary cases of dysentery, I rarely deviate from these remedies, except by giving smaller doses of jalap and cream of tartar; and occasionally using calomel in place of the blue pill, and that is not very often done. In some patients, who have recovered from the more acute symptoms for many days, and have become emaciated, with dryness of the skin; I have omitted the purgative of compound jalap, and ordered a drachm of sulphur,

mixed with half an ounce of mucilage, and one ounce of cinnamon water, to be taken in the morning early ; the ipecacuanha, gentian, and blue pill being given at four and nine o'clock P. M. In such cases, the sulphur is a mild aperient, it has the property of acting on the skin, and I believe one of its effects in some stages of dysentery, after inflammation is subdued, is produced by its actual contact with the ulcerations of the intestines, inducing them to heal.

An injection of cold water has the most certain, and quickest effect, in removing the painful affection of the bladder with suppression of urine, that attends bad cases. It has also been many times found an excellent remedy in cases where copious discharges of pure blood take place. A solution of ten grains of sugar of lead, in ten ounces of cold water, frequently has great effect in similar circumstances. Where tenesmus is severe at night, sixty drops of laudanum with two ounces of cold water, given as an injection, have often remained in the rectum all night, and procured excellent rest.

Tenesmus is usually dependant on inflammation or ulceration low down in the rectum ; and may frequently be relieved by using an ointment composed of 30 grains of sugar of lead, mixed with one ounce and a half of fresh lard ; of which a portion half the size of a nutmeg may be introduced into the rectum three times a day.

Blisters are seldom advisable in the commencement of acute dysentery ;—probably large blis-

ters are always injurious in that stage of the disease, by producing constitutional excitement, and local increased action: after due depletion has been employed, a small blister near any local induration, is often serviceable, especially if kept open for a week or ten days.

When we remember the actual condition of the local disease, which is to be removed before we can cure the severer forms of acute dysentery; we shall hold opiates in great contempt. I have very often seen opium exceedingly injurious, by masking the most deadly symptoms, until the patient was past recovery. About one case in 50 derives benefit from 10 grains of Dover's powder at bed-time, after the ipecacuanha and gentian have ceased to do good: and perhaps one in 150 does in like manner find benefit from a night dose of *vinum opii*, or an opium pill. Generally speaking, opium is only admissible in the small enema above directed. Although opium has no direct effect in curing the acute inflammation existing in recent cases of dysentery, it may be of great service when used as an enema, by allaying irritability, and procuring a temporary respite from pain and restlessness. It often happens that the irritability of the rectum is so great, that the anodyne enema is rejected in a few minutes; in such cases it is requisite to employ an attendant to press the nates together, for about half an hour, by which time the disposition to void the enema ceases.

In all cases of acute dysentery, the greatest attention is requisite to the quantity, as well as the quality of food and drink allowed; it being important to keep the colon as nearly as possible empty, while in an irritable state, and during the subsidence of inflammatory action, or the healing of ulcers. We must order the patient to be restricted to tea, barley-water, and thin sago, either of which may be given in the quantity of a coffee-cupful every six hours; and if the patient call urgently for drink, in the intervals, a wine-glassful of weak infusion of chamomile flowers may be allowed every two hours: this if used cold, is the best drink, and does not increase thirst. By attending strictly to this rule, it is probable that the food will be almost entirely absorbed in the stomach, and upper portions of the small intestines. If the abstraction of blood be properly followed up, in a degree suitable to the inflammatory condition of the intestines; and the ipecacuanha, gentian, and blue pill, be given as directed; a restoration of alvine evacuations of healthy appearance, and removal of the uncomfortable sensations, take place so quickly, in most of the ordinary cases of dysentery which are treated at an early stage, that patients are with difficulty restrained from using an undue quantity, and improper kind of food during the first days of convalescence, while the intestines are still weak, ready to be irritated by slight causes, and incapable of digesting any thing but the most bland food, in very moderate quantity. Errors in diet are the princi-

pal causes of tardy recovery, and of frequent relapses; therefore we must use the greatest caution, and only allow patients to resume their ordinary food very gradually, when convalescence is well advanced.

Next to sufficient depletion, and a very small quantity of food, is the importance of quiescence in the recumbent posture; which tends to preserve a tranquil and uniform state of the circulation. While we are following active antiphlogistic measures, the erect posture, or rising frequently to stool, is liable to induce faintness; and then the patient becomes anxious for stimuli, which, if taken, will for a time, counteract the plan of cure. Patients suffering from the severer forms of acute dysentery, should use the bed-pan. The success of the above plan of treatment, is the best proof that it is adapted to the cure of the acute dysentery of Bengal.

After having relieved the patient from all the more urgent symptoms, let us remember that a permanent cure is only effected, when the diseased parts are restored to a perfectly healthy state. Severe local inflammations, are in most cases attended with an interstitial deposit of coagulable lymph, or of serous fluid, in the structures affected; and this interstitial deposit is more certain to exist, and probably does exist to a greater extent, where inflammation has gone on to ulceration; therefore we must take some means to relieve this state; and recommend a very mild diet in moderate quantity, as long as there is reason to believe that it exists. The best medical treatment, is to

give six grains of blue pill, with as much compound extract of colocynth, every second night at bed time : and convalescents of robust constitution who become costive, soon after recovery from acute dysentery, should also take one ounce of infusion of quassia, and the same quantity of infusion of senna, with half an ounce of compound infusion of gentian, and two drachms of Epsom salts on the following mornings. Great caution is requisite in the administration of saline purgatives, in all stages of dysentery ; for the mildest saline solutions, are sometimes apt to cause irritation, by carrying off the natural mucus of the intestines. These remedies may be continued every second day, for a fortnight after convalescence is established ; observing a moderate diet, using a tepid bath every 2nd or 3rd day, and taking care that the clothing be so adapted to the season, as to insure a moderate degree of action of the skin.

The general tenor of the foregoing pages, is by no means intended to exclude due consideration of the state of the liver in dysenteric cases. The usual causes of dysentery, being sudden alternations* of temperature combined with an humid atmosphere, doubtless act by producing a degree of plethora and con-

* As similar alternations of temperature, appear to be among the most common of the exciting causes of hepatitis ; it is not surprising to find that inflammatory affections of the liver, and of the mucous membrane of the great intestines are sometimes co-existent.

gestion of internal organs ; and we can hardly doubt that the liver often partakes of this state. The most decisive means we possess, for relieving this condition of the liver, are the active depletion by blood-letting, leeches, and purgatives recommended above ; at the same time, that we use remedies to determine the circulation to the surface. These remedies may be sufficiently assisted by the small quantities of blue pill, or calomel, already advised, without producing salivation. Our earliest attention and most constant care, in the treatment of the acute dysentery of Bengal, must be directed to subdue the local inflammatory condition that exists. Many cases, if treated at the commencement of the disease, appear to be cured at once by blood-letting, leeches, and the tepid bath.

The following examples, may serve to shew the modifications of the disease, which are most commonly met with in this country ; and the effects of the remedies above recommended. The case which is inserted first in the series, required little medicine after blood-letting and purgatives had been duly employed. In the very early stage of slighter cases, the disease may undoubtedly be cured by restricting the patient's diet to tea, and gruel in small quantity, keeping him warm in bed, and giving a dose of castor oil, every day, in the morning ; at the same time that we administer two or three nauseating doses of ipecacuanha, or antimonial wine, in the course of the afternoon, daily. As a common domestic remedy for slight cases, I have often advised with success, an infusion

of two drachms of ipecacuanha root, with half a drachm of fresh ginger root sliced, in a pint of boiling water: of which, when cold and strained, a table spoonful is directed to be taken every half hour; and no food or drink used, except a tea-cupful of tepid barley water three times a day.

CASE I.—Thomas Bullery, Æt. 38. A stout man, of light complexion, arrived from England six weeks ago, he had been in India before, and has been now living on board ship. Was attacked with dysentery on the 18th Oct. 1829, and his complaints increased daily until the 25th, when he was landed in the evening, and sent to the General Hospital. The belly was then rather full and inelastic, pressure over the course of the colon caused pain, but there was very little pyrexia: he stated that his evacuations were very frequent and scanty, consisting mostly of blood; and that he was up to stool 24 times last night.

V. S. ad lb. i. ss.

R. Calomel. gr. xii.

Extract. Hyoscyami, gr. iv. in 2 pills at bed time.

October 26th.—Blood not buffy; he has been up to the stool very often, but voided nothing. He had a slight rigor in the night; there is no pyrexia now. Pulse 80, tongue clean at the edges, with white mucus on its centre. The belly is rather full, doughy, and inelastic; pressure across the navel causes pain.

Apply 20 leeches to the belly immediately.

Let him take Pulv. Jalap. Comp. 3 i. at seven in the morning.

Tepid Bath at noon, and give

Olei Ricini $\bar{3}$ i. after the bath.

Vesper.—Had 12 free stools, with very little blood, and he is better.

R. Pil. Hydrarg.

Extract Colocynth. Comp. āā. gr. iv. at bed time.

Oct. 27th.—He had only three stools in the night, and is better in every respect.

Pulv. Jalap. Comp. $\bar{3}$ i. immediately.

Oct. 28th.—Had five stools in the day—none at night.

Medicine repeated.

Oct. 29th.—Convalescent. No more medicine used. Discharged well on the 2nd November, 1829.

CASE II.—Henry Pritchard, *Æt.* 21, a middle-sized man, of dark complexion, recently arrived from England; was taken ill with dysentery, on the 20th November, 1830, and became gradually worse every day till he was sent to Hospital on the evening of the 25th. He stated that he was passing much blood with his stools, which were attended with very distressing tenesmus. The belly was full and hard, face flushed, pulse 92 and full.

V. S. ad lb. i. ss.

R. Calomel.

Extract. Colocynth. Comp. āā. $\bar{\Theta}$ ss. in pills at bed time.

November 26th.—The blood drawn last night, is buffy, and cupped. He had eight stools in the night, consisting of blood and mucus, attended with dreadful tenesmus; the belly is hard and hot; the tongue

moist, and loaded with brownish mucus. The fever and flushed face continue. Pulse 96, and full.

V. S. ad lb. i. ss. immediately.

R. Pulv. Jalap. Comp. ʒ i. at 7 A. M.

Apply 12 leeches to the belly at noon.

R. Pulv. Ipecacuanhæ gr. xii.

Extract. Gentian. gr. viii.

Pil. Hydrarg. gr. x. misce et divide in pil. No. vi.

Three pills to be taken at noon, and three more at bed time.

Nov. 27th.—Had 24 stools in the night, consisting of fæces, mixed with slime and blood; he has suffered much from tenesmus and straining. His belly is hard and hot, and some pyrexia remains; but the pulse is 80, and soft.

V. S. ad lb. i. immediately.

Sixteen leeches to the belly at noon.

Medicine repeated as yesterday.

Laudanum ʒ i. to be given in two ounces of cold water, as an Enema at bed time.

Nov. 28th.—Blood florid, and not buffy: he had five stools in the day (consisting of blood and mucus), 14 at night; and he is feverish.

Apply eight leeches to the belly.

Medicine repeated as yesterday.

Nov. 29th.—Eight stools, yellow fæces, and mucus without blood. He feels easier, but the cheeks are flushed, the pulse 76, weak and soft: some enlargement with induration of the liver is now perceptible.

Apply 12 leeches to the region of the liver.

Tepid Bath two hours after the leeches.

To take Pulv. Jalap. C. ʒ i. at 10 o'clock.

Three of such pills as were ordered on the 26th, to be given at 7 A. M. and repeated at noon, and at 8 in the evening.

Anodyne Enema at bed time, as on the 27th.

Nov. 30th.—Was frequently purged yesterday, but has had only five stools since the enema last night; the evacuations contain much mucus. He has still some pyrexia, and elastic tension of the belly.

Apply 16 leeches to the epigastrium immediately.

Three pills as on the 26th, to be taken at 7 A. M.

Pulv. Jalap. Comp. 3 i. at noon.

R. Extract. Colocynth. Comp.—Pulv. Ipecacuanhæ.

————Hyoscyami.—Pil. Hydrarg. āā gr. iii.

In pills at bed time.—Enema repeated at night.

December 1st.—Was freely purged by the jalap, had only two stools in the night; the liver is still hard.

Apply eight leeches to the region of the liver.

R. Extract. Colocynth. Comp. ð ss.

Pil. Hydrarg. gr. v. in pills at 7 A. M.

The anodyne enema, and night pills repeated at bed time, as yesterday.

Dec. 2nd.—Has only had five stools, which are scanty and slimy. There is no pyrexia at present. The right *rectus abdominis* muscle is more tense than the left.

Apply six leeches to the region of the liver.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. āā gr. v. to be taken in pills at 7 o'clock.

Tepid Bath at noon.

Pulv. Jalap. Comp. 3 i. after the bath.

Two of the pills at bed time, as prescribed on the 26th November.

Dec. 3rd.—Had four copious, dark, feculent stools. Ordered to take two of the pills prescribed on the 26th November, morning and night; and Compound Powder of Jalap 3 i. at noon.

Dec. 4th.—He had three natural loose stools last night, and his gums are sore. Belly still hard and tense; which I find is caused, by his having clandestinely obtained an improper quantity of food, therefore an emetic is now ordered; and its repetition promised daily, if the belly should be tense.

From this date, he took one drachm of Compound Powder of Jalap, daily at noon; and the pills such as prescribed on the 26th November, night and morning, till the 10th December. After that, his bowels were kept free by Pil. Rhei C. which was given daily, till he was discharged on the 12th January 1831.

The two foregoing patients were affected with symptoms too strongly marked, and those symptoms had existed for too long a period to admit of any doubt that they were both suffering from acute dysentery to a very severe degree.

In the first case the patient recovered so quickly after free depletion, that we cannot suppose ulceration of the intestine had taken place.

The disease was attended with more pyrexia, in the second case, and was complicated with some induration and enlargement of the liver. The patient

was a recruit recently arrived from Europe; and on the 4th of December, we find he was detected in clandestinely obtaining improper food, which he probably had been in the habit of doing often before, and had thereby retarded his recovery. After the emetic, means were taken to render it impossible for him to get more food than was fit for the nature of his ailment; and his recovery was from that time uninterrupted.

CASE III.—Joseph Robinson, *Æt.* 48, admitted into General Hospital on the evening of 9th September, 1831. A small man, of light complexion, arrived five weeks ago from Europe, has been ill 11 days with purging; for the last three days he has passed much blood, and has been as often as 20 times to stool. He has taken pills and other medicine, but has not been bled. His gums are swollen, apparently from mercury; the evacuations now consist of blood and slime, and he has been 13 times to stool this day.

V. S. ad lb. i.

R. Ol. Ricini.—Aq. Cinnamon. āā ʒ i. at 5 p. m.

R. Pulv. Ipecac.—Extract. Gentian. āā gr. iv.

In 2 pills at 8, and to be repeated at 10 and 12 o'clock.

Sept. 10th.—Blood buffy, he had six scanty stools in the night, nearly black, and tinged with blood; he has vomited twice; his belly is flat, soft, and elastic; but pressure over the transverse arch of the colon gives pain. Pulse 84 and soft, tongue slightly

coated with pale-grey mucus; there is no morbid heat of the skin.

V. S. ad lb. i.

R. Pulv. Jalap. C. 3 i. at 7 A. M.

Tepid Bath at noon.

2 pills as ordered above, at 12, 3, and 6 o'clock.

Sept. 11th.—Blood very buffy; he was purged severely in the forenoon, but went only six times to stool during the night. His belly is soft and flat, but a little tender when pressed. He has no pyrexia, and feels much better.

Apply 6 leeches to the epigastrium.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. āā gr. v. at 7 A. M.

Vesper.—During the day he has had six stools, not very copious, and composed of blood and slime in nearly equal parts.

Give 2 of the pills as ordered on the 9th.—And an Anodyne Enema of Laudanum 3 i. in 3 ii. of water.

Sept. 12th.—The enema was retained till past midnight, since which he has had two loose, feculent, fluid stools, of natural color, with very little slime or blood. Pulse 84 and soft, belly soft, flat, and elastic: he sighs often, but says, he is much better. There is a little pale-grey mucus on the centre of the tongue, but its edges are moist and clean.

Give Ipecacuanha and Extract of Gentian, of each 4 grains, in pills, night and morning.

R. Pulv. Jalap. Comp. 3 ss. in Aq. Cinnamon. 3 i. at noon.

Anodyne Enema at bed time.

Sept. 13th.—He appears much better ; had eight fluid, dark and feculent stools in the day ; was not purged at night, and he slept well ; tongue clean.

Repeat all treatment as yesterday.

Sept. 14th.—Four stools during the day, none at night ; pulse 76 and soft, he feels easy.

R. Ext. Colocynth. C.—*Pil. Hydrarg.* āā gr. v. in 2 pills.

Sept. 15th.—Several loose natural stools ; medicine omitted.

This is one of those cases, which, on account of the dark color of the stools, used to be treated with Calomel, until the patient was salivated ; the practitioner was then satisfied that he had done all that was requisite, and when the patient died, nothing was said about the treatment, except that “when mercury fails, all other things are in general useless.” The patient was a sailor of the ship *Malcolm*, and during an illness of eleven days, prior to admission into Hospital, he had not been bled. He was decidedly under the influence of mercury on admission, but as I have no written document to prove that he had taken calomel, I have been unwilling to make a more positive assertion, than that the mouth was affected, apparently from mercury. If it be contended that there may be a possible doubt as to the cause of the sore mouth, we are bound to admit the conclusion, that such severe cases of acute dysentery, if treated by blood-letting, mild purgatives, and ipecacuanha, may be cured without using more mercury than is contained in 10 grains of blue pill.

CASE IV.—Andrew Fagan, *Æt.* 31. A small but muscular sailor of dark complexion, recently arrived in Bengal: never on shore until landed sick, and sent into General Hospital, on the evening of 26th September, 1827. He has suffered for 5 days from dysentery, and has taken no medicine except one dose of salts. He has been purged 26 times, in the last 24 hours; the evacuations are mixed with blood, and he has pain in the lower belly, but there is very little pyrexia.

On admission, he was bled from the arm to lb. i. and ordered 1 oz. of castor oil. Next morning 16 leeches were applied to the lower belly, and he was put into the tepid bath: six grains of Ipecacuanha, and four grains of Extract of Gentian, were given morning and night.

Sept. 28th.—He has had only two stools in the last 24 hours, there is no pain or pyrexia.

Tepid Bath.

Pills repeated morning and night; and he was ordered to take one drachm of Compound Powder of Jalap at noon.

Sept. 29th.—Four stools after the jalap. One natural loose evacuation at night, no pain.

Pills repeated daily, morning and night.

Oct. 8th.—Discharged well.

CASE V.—Sharpe, *Æt.* 25. A slight-made man, of light complexion, and sober habits, two months in India. Admitted into General Hospital on the 30th November, 1827. Ill with dysentery for 8 days;

goes to stool ten times every hour through the day and night, and passes much blood, with small quantities of yellow feculence. There is little pyrexia, and pressure on the belly gives pain.

Apply twenty leeches to the belly.

Tepid Bath after the leeches: and he was ordered to wear a flannel dress.

R. Pulv. Jalap. Comp. 3 ss.

December 1st.—Was at stool every five minutes during the day, but less frequently at night; evacuations scanty and mixed with blood; those last voided this morning, consist of a little fluid blood and water; there is no pyrexia, the skin is dry, he feels very little pain on pressing the belly, and there is no griping.

R. Pulv. Ipecac. gr. vi.—Ext. Gentian. gr. iv.

Pil. Hydrarg. gr. v. in 3 pills, morning and night.

Pulv. Jalap. C. 3 i. at noon.—Tepid bath at 2 P. M.

Dec. 2nd.—Had a dozen stools in the 24 hours, without pain; the skin is soft, but there is very little evident perspiration. Nausea and vomiting came on after the last dose of pills.

R. Pulv. Ipecac. gr. iii.—Pil. Hydrarg. gr. v.

Extract. Gentian. gr. ii. in 2 pills, morning and night.

Pulv. Jalap. Comp. 3 ss. at noon.

Dec. 3rd.—Four natural stools in the 24 hours, he has passed no blood, and is free from pain.

Ordered to take half an ounce of castor oil.

Vesper.—He had many loose stools after the oil.

He was ordered to take 3 grains of Ipecacuanha,

And 2 grains of Extract of Gentian in a pill.

Dec. 4th.—Had no stool in the night, three free evacuations this morning.

Pills repeated at bed time, as last night.

Dec. 5th.—Had three stools yesterday, but was not up all night ; two natural stools this morning.

Extract. Colocynth. C.—Pil. Hydrarg. āā gr. ii. in a pill.

Dec. 6th.—Bowels free, no pain or pyrexia : medicine omitted.

Dec. 8th.—Discharged.

The two previous cases, as well as that next reported, are examples of the benefit which may be derived from the treatment now proposed, if it be employed in an early stage of Indian dysentery. In these three cases, there was abundant evidence of a very high degree of irritation of the mucous membrane of the great intestines, which had been established for several days; and there was no reason to expect that spontaneous amendment was likely to take place, if the remedies had not been employed. Where a cure is so quickly accomplished, we cannot suppose that ulceration of the intestines had taken place.

CASE VI.—A stout man of dark complexion, 26 years of age, and two years in India ; applied for my advice on the 28th March, 1827. He had been suffering for four days from dysentery, which commenced as a common looseness of the bowels, and became rapidly worse, until he passed scarcely anything by stool except blood and mucus. There was little pyrexia, a white tongue, anxiety, thirst, and total loss of appetite : he had pain in both iliac re-

gions, morbid sensibility on pressure over the course of the colon, and was tormented by incessant desire to go to stool, which in a great measure deprived him of rest at night. He had used mild aperients, a very spare diet, and kept quiet in his room, but the disease became worse daily.

R. Pulv. Ipecac.—Extract. Gentian.

Pil. Hydrarg. āā gr. v. in 3 pills, night and morning.

R. Pulv. Jalap. ℥ i.—Potassæ Supertart. gr. 45.

Tinct. Sennæ ʒ i.—Aquæ Anethi ʒ i. ss. daily at 11 o'clock A. M.

March 29th.—He is much better, less frequently at stool, and has voided less slime and blood: no nausea from the medicine.

Treatment repeated daily.

March 31st.—He slept well, the irritation and frequency of purging are much abated. Ordered to take Pulv. Ipecac. gr. vi. Extract. Gentian. gr. iv. in two pills every night. Purgative repeated every morning early. On the 4th of April, his bowels were quite regular, and medicine omitted. During this treatment a very spare diet was allowed. This patient had dysentery in August and September, 1825; and was then treated according to the usual course, with evacuants, and calomel to salivate: by which, he was reduced to the lowest degree of debility, and his life was only saved by a voyage to sea. He considered the second attack much of the same description as the early stage of his former illness; and ascribed his recovery entirely to the Ipecacuanha and Extract of Gentian.

CASE VII.—Hing, aged 46, of spare habit, and light complexion; resident in India nine years: admitted into the General Hospital, on the 26th September, 1828, in the evening. Says, he has had dysentery for three days, and that he goes to stool a hundred times in 24 hours, the evacuations consist of blood and slime: he has taken medicine for two days, but is ignorant of its composition. It is now an hour since he came to the ward, and he has been above seven times to stool: the dejections are scanty, and consist of slime and blood, with some dark feculence. There is no pyrexia: pressure on the belly causes pain.

Diet ordered to be strictly confined to tea, with two ounces of bread, night and morning; and four table-spoonsful of sago, repeated four times a day.

Apply twelve leeches to the belly.

Let him take immediately, Ipecacuanha, 6 grains; Extract of Gentian, 4 grains; Blue Pill, 10 grs. in four pills.

September 27th.—Stools copious and of dark color, mixed with blood and slime: he is less frequently purged since midnight.

Repeat the four pills now, and again at night.

One drachm of Compound Powder of Jalap at noon.

Sept. 28th.—Had 25 stools yesterday, and 20 at night; they consist of much bloody water, with some grey feculence. A clean moist tongue; no pyrexia; he has passed little urine.

Repeat the four pills now.—Tepid bath at 10 o'clock, and afterwards apply a large blister to the belly.

Pulv. Jalap. Comp. 3 i. at noon.

Vesper.—Twenty-one stools in the day, which consist almost entirely of blood and slime.

P. Ipecacuanhæ gr. vi.—Ext. Gentian, gr iv. at bed time.

Sept. 29th.—Fourteen scanty stools in the night ; there is less blood voided than on admission.

Pulv. Ipecac. gr. vi.—Extract. Gentian. gr. iv. in two pills at 7 A. M. and repeated at bed time.

Pulv. Jalap. Comp. 3 i. at noon.

Sept. 30th.—Fifteen scanty stools in the day, with very little blood ; eight watery stools at night, moderate in quantity, with much grey and slate-colored powder at the bottom of the stool-pan ; tongue clean and moist ; no pyrexia.

Medicine repeated as yesterday.

October 1st.—Had three copious, loose, feculent stools yesterday ; six stools at night, less free, but without blood or slime : there is much reddish-grey powder at the bottom of the stool-pan ; no pyrexia.

Treatment as yesterday ; blister to be kept open.

Oct. 2nd.—One fluid stool of deep orange color yesterday, and one this morning.

Repeat the pills this morning.

Vesper.—No stool this day : he is free from pyrexia, and has no pain except from the open blister.

Give Sulphur 3 ii. with mucilage 3 ss. in water 3 i.

Oct. 3rd.—He had two stools in the night ; which consist of fluid feculence, without odor or appearance of sulphur : the blister is very sore, and discharges freely.

Repeat the Sulphur as last night.

Oct. 4th.—Three free, fluid stools, in 24 hours ; with odor and appearance of sulphur.

Repeat the Sulphur.

Oct. 5th.—Two stools in 24 hours : no pain.

Allow the blister to heal.

P. Jalap. Comp. 3 ss. at noon.

P. Ipecac. gr. vi.—Ext. Gentian. gr. iv. in two pills at bed time.

Oct. 6th.—Two copious, loose, feculent stools in 24 hours. Treatment of yesterday repeated.

Oct. 7th.—Two copious, feculent stools, with odor and color of sulphur, though none of that medicine has been taken since the 4th. Treatment of yesterday repeated.

Oct. 8th.—Medicine omitted.

Oct. 9th.—Two copious, natural, loose stools : he feels well.

Soup was allowed this day, and a chicken on the 12th. He took no more medicine except on the 13th, when he was costive, and had then, compound extract of colocynth and blue pill, each 5 grains, in the morning. This patient took no mercury while in Hospital, except what was contained in 45 grains of blue pill, and although that remedy is in general found to be useful, it is by no means evident that it had any good effect in this case.

The above are fair examples, of the ordinary results of this plan of treatment, in the severer forms of acute dysentery. I speak with the confidence due

to trials on many hundreds of patients, in the course of several years past ; and if this mode of treatment, were employed on a large scale, and its results contrasted with the immediate, as well as the remote effects of the ordinary mercurial treatment, to the extent of producing salivation ; or of the calomel and opium practice, followed without the intention of salivating :—I am satisfied that a much more limited, and much more rational employment of mercury than was formerly adopted, would be fully authorized by the event.

Extensive experience has established the efficacy of ipecacuanha, in the dysentery of Europeans in Bengal ; whether they be recent arrivals, or old residents : and it is not less proper, in the cases of Indo-Britons. In the dysentery of children, it is unequalled by any remedy I have ever tried. For patients under two years of age, I usually give ipecacuanha, extract of gentian, and blue pill, each half a grain, night and morning (the pill being mixed in syrup) : or, calomel and ipecacuanha each half a grain, hydrargyrus cum creta, four grains, night and morning, and a small dose of castor oil, or of compound powder of jalap, daily at noon. As soon as blood and slime cease to appear in the stools, the morning dose is omitted ; and the purgative is given only every second day, three hours after breakfast.

Ipecacuanha has been so long employed in the cure of intestinal profluvia, that its utility in alleviating some of the symptoms attending those diseases

seems to a certain extent acknowledged: but the mode in which it is generally exhibited would leave room to believe, that no great reliance has been of late years placed in this remedy; although it was originally introduced to the notice of the profession in Europe, as a medicine of the greatest efficacy in the cure of dysentery. A reference to the history of the remedy, may satisfy us that it was formerly held in estimation in the cure of that disease, just in proportion as it was administered in large doses, whereas when given in small doses it was considered of less efficacy. We find it was sometimes so prepared by boiling, that the emetic properties of the root were obviated. In severe cases of Dysentery, ipecacuanha has more recently been looked on as an adjuvant of minor importance, the benefit derived from it, appearing to belong in great measure to the other remedies with which it was combined. A great variety of trials have satisfied me, that the praises formerly bestowed on large doses of ipecacuanha* as an anti-dysenteric, are in many instances,

* The following references show the confidence with which this remedy was formerly employed.

“Ypecacuanham ad dr. i. in pollinem redactam, in Aquæ Plantaginis oz. vi. cum paucō Syrup. Rosar, Rubr. et Mastiches Puræ pulveredr. ss. vel simul et semel, vel partitis vicibus, scilicet, in duas distinctum doses, duobus diebus continuis exhibuimus, vidimusque sic curatas dysenterias, etiā eas in quibus pleno erumpebat fluēto, et diarrhœas aliquatenus coercitas fuisse.” *Magnatus Bibliotheca Pharmaceutico Medica, Vol. 2, Lib. 22. p. 1142.* This author adduces farther evidence from others to the same effect: speaking of

founded on the most just grounds ; and the remedy appears advisable in the early stage of almost all ordinary cases of acute dysentery. In many of the slighter cases of dysentery, ipecacuanha and gentian may be given night and morning, without the blue pill, a small dose of compound powder of jalap being ordered daily at noon ; but it has appeared to me. that the efficacy of the other remedies is increased by the blue pill.

two species of ipecacuanha. “Utriusque quotidianus est usus, malunt tamen dilutum, quod vel unius noctis, sub dio maceratione aut coctione in aquâ medicam suam virtutem abunde liquoribus communicet. Postea caput mortuum reservatum, denuoque eodem modo præparatum, in eundem usum exhibetur, minus quidem efficax ad purgandum vel vomendum, sed majus adstringens, &c. &c. et adstringendo viscerum tonum restituat. *A Gulielmo Pisone.*”

“Ipecacuanhæ radix contusa et drachmæ unius pondere in poculo vini aquæ mixti macerata, deinde leviter bullita, &c. &c. non solum in dysenteria, sed etiam in affectibus ventriculi detur optimo successu.” *Râius.*

“Igpegaya, vel Pigaya, optime dicunt dysenterias sanat: ita expurgat ut identidem alvi fluxum sistat.” *Johan de Leat, Indiæ Occidentalis Historia.*

“Etiamsi Ipecacuanha inter præstantissima reponi mereatur medicamenta, pro dysenteria curanda, exhibetur tamen aliquando sine exoptato effectû. Eam in enematibus sæpius immiscui pro dysenteriarum curâ, sed semper cum mediocri admodum effectû.” *Nicolaus Lemery, Historia Aromat. Simpl.*

“Ipecacuanha is one of the best remedies and most certain for the cure of the dysentery or bloody flux. It stops also other scourings of the guts, but not with equal success. The dose is 20 to 30 grains of the brown, and from 30 to 40 of the gray powder.”—*Pomet on Drugs, p. 25.*

The first effects of ipecacuanha given in ordinary cases of acute dysentery, as above directed, are generally a slight increase in the secretions from the bowels, the evacuations becoming more copious and feculent ; pain and tenesmus are abated, while the quantity of blood and slime immediately decrease, and soon disappear altogether. At the same time I have frequently observed, that a change takes place in the specific gravity of the feculence voided ; a sediment appearing at the bottom of the more fluid stools. This sediment is frequently a light-gray powder resembling bran ; occasionally it is more dense like pounded slate ; and sometimes, though rarely, it is of dark brown color, and in small lumps like split peas. Similar appearances are sometimes seen in the evacuations of dysenteric patients who are recovering under a daily employment of purging by pulv. jalap. comp. The appearance just noticed, almost invariably indicates that a favourable change is about to follow, and it seems to denote, that the coats of the intestines are prepared to assume healthy secretions. When this appearance is observed, unattended with blood, and the patient is free from pyrexia or pain on pressing the belly, we may give smaller doses of Ipecacuanha and Extract of Gentian with blue pill at bedtime, and go on with some mild purgative every morning, being at the same time most cautious in allowing any increase of diet.

Wishing to advise the best mode of obtaining all the benefit possible, from the use of ipecacuanha ; I

object to the practice of making dysenteric patients swallow a certain quantity of calomel and opium with each dose of ipecacuanha. The calomel* often has an immediate bad effect on ulcerated intestines ; and opium frequently suppresses the evacuations from the bowels, and thereby serves to keep up local congestions. The best effects of opium may be procured for dysenteric patients, by using the small anodyne enema, of 2 oz. of water, with 3 i. of laudanum; which not only soothes local irritation, but diminishes any morbid constitutional irritability that may exist, without the usual evil consequences of swallowing opium.

The extract of gentian, as above prescribed, almost always restrains the emetic properties of ipecacuanha, but does not interfere with its antidysenteric effects ; on the contrary, the vegetable bitter diverts the action of the ipecacuanha from the stomach, and directs it towards other organs.

Compound powder of jalap is preferable to other purgatives ; its primary effect on many dysenteric patients is more mild than that of castor oil ; and the relief that in almost every case follows, is infinitely greater than happens after the use of any other purgative medicine. It appears to act principally on the

* "The mercurial action is not unfrequently attended by a peculiar inflammation of the bowels, with discharge of mucus, mixed with blood, tormina and tensemus."—*See Professor Graves's 12th Clinical Lecture, 1832-33.*

intestines, the copious evacuations from which reduce the plethora and congestion in the vessels of the mesentery; and the morbid vascular turgescence is diverted from the colon and mesocolon. It also effectually evacuates the great intestines. The remote effects of this purgative depend partly on its diuretic properties; and partly on its increasing the activity of the absorbents, and enabling them to remove the interstitial deposit, usually accompanying severe cases of acute inflammation. In these respects, and particularly in increasing the activity of the absorbents, its influence in dropsical cases is generally admitted: and where there is more decided local congestion and inflammation, as in dysentery, the blue pill doubtless performs an important office.

Calomel has not been found so useful in this disease, as might have been expected; from observing that some authors urge us to employ it generally for the cure of dysentery, in large and repeated doses, with a view of producing salivation as soon as possible: while other practitioners of long experience in India, advise the same remedy just as indiscriminately, and in as large doses, always followed by drastic purgatives; but deny that any benefit arises from salivation*. Either of these plans, if generally

* Some practitioners have asserted that the primary seat of dysentery consists in a morbid condition of the liver, and disorder of its functions. They have thence concluded that mercury employed as a sialogogue is the best mode of treatment for acute dysentery; and they have depended almost exclusively, on

adopted in Bengal, would very frequently destroy life. The advocates of each of these systems act on erroneous principles ; and expect to cure dysentery, by producing some change in the liver, and in the secretion of bile, which they imagine to be in a disordered state. When dark-coloured stools are observed, they are ascribed to disordered secretion of bile ; and the patient, if dysenteric, is sentenced to undergo the discipline of large and repeated doses of calomel, and drastic purgatives, daily. If the stools are pale-

this remedy, for the cure of the worst forms of the disease. If it be necessary to show how far the authority of practical men, who have had extensive opportunities of observing the disease, are opposed to such conclusions, we might refer to *Dr. Ballingal*, who says ; “The dissection of every subject, who died of dysentery in the Regimental Hospital of H. M. 1st Royals, at Pinang, (with one solitary exception,) proved the disease to consist entirely in an inflammatory affection of the large intestines, without a trace of disease in the structure of the liver.” *Mr. Geddes*, when Surgeon of the Madras European Regiment, speaking of the treatment of acute dysentery by ipecacuanha and purgatives, says, “I consider myself fortunate in having become acquainted with a plan which precludes the necessity of exhibiting a grain of mercury, in a disease affording so many inmates to an European Hospital.” A multitude of other authorities from India might be named. *Dr. L. Frank* says, that “Large doses of calomel proved dangerous in the dysentery which affected the French Army in Egypt. *Drs. Cheyne* and *O'Brien*, with a multitude of others in Europe, will not acknowledge the hepatic origin of dysentery, and what is of more importance in reference to practice, they have decided that mercury could not be depended upon, and that it did not relieve in numerous instances where the mouth was affected ; sometimes it seemed to increase the disease.”

colored, calomel is still held in reverence, as the best corrector of the disease. The pathology on which such practice rests, is incomprehensible.

If dysentery be ascribable to a disordered state of the bile ; I would ask, how does it happen that the great intestines are the parts principally diseased in dysentery ; while the small intestines are very seldom affected, although the bile has to pass along the course of the small intestines before reaching the cœcum and colon ? I would also ask, if the black and discolored stools depend on disordered bile, how it happens that the contents of the small intestines are almost always of different shades of yellow or orange color ; while in these same subjects, we almost always find the fæces immediately on passing into the great intestine, become of a dark-grey, dark-brown, or black color ? There must be something besides bile to produce this. I would further ask, what evidence we have that the dark color of the fæcal evacuations is always* dependant on the presence of disordered bile ? Until some proof shall be afforded on this point, we may reasonably hesitate to ascribe the occurrence of

* "When the motions become of a dull white, or ash-color, we judge with tolerable precision of the deficiency of bile ; but I am not aware of any test by which we can judge with precision of its redundancy ; and I must confess my suspicion, that the terms bilious stools, is often applied in a very vague manner, to evacuations which merely consist of thin feculent matter mixed with mucus from the intestinal membrane."—*Abercrombie on Diseases of the Abdominal Viscera*, page 393.

dark-colored or black stools, in this climate, invariably to disordered secretions from the liver : we should be less apt to speak constantly of the black cystic bile, when the evacuations are of a very dark color ; and we should be less inclined to suppose, that calomel is indispensable in all these cases.

Notwithstanding all that has been written in praise of the general employment of large and repeated doses of calomel, in the dysentery of India, whether that medicine be used to the extent of producing salivation or not ; it will be easy to shew, that calomel is often not only useless, but that in many cases of the dysentery of Bengal, it is exceedingly injurious. I speak without hesitation on this subject, from having too often seen the fallacy of trusting generally to the effects of calomel, for the cure of the severer forms of acute dysentery ; and having tried that medicine extensively, in every stage of the disease.

However, there is one description of case, in which I have several times seen the most remarkable and immediate good effects from a large dose of calomel : that is, in robust subjects, where there was considerable pyrexia, and the patient has been not above two or three days ill of dysentery, having frequent calls to evacuate the bowels, but only voiding about half an ounce of reddish mucus, each time he goes to stool. In such cases, let the patient be bled from the arm to lb. i. ss. or lb. ii. while in the recumbent posture ; immediately afterwards, let him take 20 grains of calomel, with as much ipecacuanha in pills ; avoiding

any food or drink for four hours, except two spoonsful of barley-water every half hour :—at the end of the four hours, let him take a drachm of compound powder of jalap ; after which, he is to use only the limited quantity of food, directed at page 73 ; and to have an anodyne enema at night. Patients are sometimes almost cured, by one day's treatment of this sort : other cases, require for two days more, half the dose of calomel and ipecacuanha in pills each morning, the compound jalap after an interval of four hours, and an anodyne enema at night :—observing the same restrictions in point of food and drink. This large dose of ipecacuanha with calomel, does not very often cause vomiting : it forms eight large pills, and the principal difficulty with most patients arises from the abhorrence of swallowing such a number of large pills, at one time. This plan of treatment is very rarely requisite, but I have seen it in some cases admirably successful. It was formerly tried, and much approved by Mr. Job, at the Madras Presidency.

We often meet with cases of dysentery in Bengal, in which the disease remains in a very distressing degree, after salivation has been fully established ; and we only relieve the patient, by changing the treatment. In many cases, the effects of mercury are evidently injurious, through the whole course of the disease : and persistance in the mercurial plan of treatment is sure to destroy the patient. The unfavorable effects of mercury are very conspicuous, in cases where a scorbutic diathesis exists ; and in patients

suffering from splenic cachexia. Mercury is also very injurious to many cases of dysentery in which large quantities of blood are voided, partly coagulated and exhaling a putrid odor ; while the patient's skin is perspiring freely, and there is little or no disorder of the pulse.

Notwithstanding the utmost care, and most scientific treatment ; dysentery, within the tropics, must always be, to a certain extent, a fatal disease. Sailors on board ship are under very unfavorable circumstances, from being in general exposed to damp and cold whenever they go to stool ; and from the improper food usually supplied by their messmates. Those patients who do not apply for medical aid, until the severer symptoms of acute dysentery have existed for several days ; and those who do not come under treatment until sloughing has taken place in the mucous membrane of the intestines ; more especially if a scorbutic diathesis be present, will hardly ever be saved, by any plan of treatment.

CASE VIII.—Francis Chaffer, *Æt.* 19, a slight-made sailor, of dark complexion, 2 years in India ; has been 10 days ill with purging, which he says was brought on by drinking infusion of tamarinds, on board ship, when he arrived from sea : admitted into the General Hospital, at noon, on the 23rd April, 1831. Pulse 120 ; skin covered with cold perspiration ; tongue moist, clean, and cool ; belly rather tumid, and elastic ; he goes to stool every quarter of an hour, and passes nothing but fluid blood ; the eyes

are sunk, and his countenance is anxious. He has taken medicine on board ship, and had a blister to the belly, which is now healed.

An ounce of castor oil was given on his admission ; and an enema of laudanum 3 i. in six ounces of cold water.

R. Plumbi Superacet. \mathfrak{D} ss. Aq. Font. $\frac{3}{4}$ x. Tinct. Opii 3 i. misce : to be given as an Enema at bed time.

Let him wear a flannel dress.

April 24th.—Had 14 stools during the night ; not less than five pints of pure fluid blood, with a few films of membrane : he has no pain, and the belly is less tumid, and softer, He now lies quietly on his back, with his eyes closed ; the skin is cool, and covered with a profuse cold sweat, like a man in an advanced stage of cholera. Pulse 120 and soft ; there is much anxiety, and oppression at the chest.

R. Calomel. \mathfrak{D} ss. Opii gr. i. at 6 A. M. and repeat in two hours.

He died in the afternoon.

Dissection 12 hours after death :

Subject not much emaciated. Liver of rather paler color than natural, but otherwise not apparently diseased. Omentum adhering to the colon in several places ; and many patches of puriform fluid were observed, at those parts where the intestines touched the omentum.

The coats of the cœcum and colon thickened, and several purple spots were apparent on the exterior of the colon, corresponding to gangrenous ulcers

within. A vast number of deep ragged ulcers, on the interior of the cœcum and colon ; and those intestines were distended with coagula of blood. Much morbid vascularity at the root of the mesocolon. Glands of mesocolon inflamed.

CASE IX.—John Wilson, a slight-made man, of light complexion, and delicate constitution : 31 years of age, and only six months in India : was admitted into the General Hospital on the evening of the 1st April, 1831. He was then much emaciated, and had been ill 70 days : his first complaint had been a pain in the region of the liver, but for the last 39 days, he has suffered from a distressing purging ; he goes to stool fourteen times in the 24 hours, and the evacuations consist principally of blood, with a little mucus. His belly is flat and much retracted ; the region of the cœcum is indurated, and pressure at that part causes pain ; there is a slight enlargement of the liver. Pulse 92, and rather hard, but small ; tongue covered with a dry brown crust.

V. S. ad lb. i.

R. Calomel.—Pulv. Ipecacuanhæ āā ʒ ss. to be made into pills with mucilage, and the whole taken at 9 o'clock.

April 2nd.—The blood drawn last night, was not buffy ; he rose to stool ten times in the night, the evacuations consist entirely of blood, part of which is coagulated ; there is no sign of fæces ; tongue less dry ; it is coated with grey mucus. Pulse 74 and soft ; he is very pale, and feels weak ; the indura-

tion in the region of the cœcum has disappeared, and the liver is less tumid.

Apply four leeches over the region of the cœcum.

R. Pulv. Ipecacuanhæ—Extract. Gentianæ,

Pil. Hydrarg. āā gr. vi. in three pills, at 6 A. M., and repeat a similar dose at bed-time.

Pulv. Jalap. Comp. 3 i. at noon, in mint water.

Apr. 3rd.—He had ten stools after 9 o'clock last night, the evacuations about three pints of fluid blood, without any fæces : he has made urine. There is a brown fur on the tongue, the centre of which is dry. The pulse is 82 and soft ; the skin perspiring.

An enema of a pint of cold water to be given at 6 A. M.

Two pills as above prescribed at 8 A. M., and to be repeated at 11, and at 3 P. M.

Vesper.—He was 16 times at stool in the day ; the evacuations consist of a bloody water, which exhales a putrid odor.

Two pills as above were ordered at 6 P. M., and repeated at midnight.

An enema at bed-time of laudanum 3 i. in 2 oz. of water.

Apr. 4th.—Has not been up to stool since the enema ; the belly is not tumid, but there is some hardness across the epigastrium. He is troubled with hickup. Pulse 86 and soft.

R. Infus. Gentian. Comp.—Infus. Sennæ āā 3 iv.

Magnes. Sulphatis 3 i.—Quininæ Sulph. gr. iv.

Tinct. Sennæ 3 ii. misce.

Two ounces to be given every three hours, till he be twice purged.

Vesper.—He took three doses of the mixture, and has had four stools, a bloody fluid with some feculence, of most horrid odor : he has made urine, and thinks he is better ; experiences a sense of dull weight across the lower belly, but has no acute pain.

Two pills as on the 2nd ordered at 8 P. M., and repeated at midnight.

R. Plumbi Acetat. ʒ ss. Tinct. Opii ʒ i.

Aquæ Fontis ʒ ii. misce, for injection at 8 P. M.

Apr. 5th.—He was only twice up to stool during the night, the evacuations with the urine not above a pint, of the same sort as last night. Pulse 96 and soft ; tongue brown, but its edges are cleaner.

Repeat the mixture as yesterday, every three hours, for three doses.—Give at 6 A. M. an enema of 10 grains of Acetate of Lead, in 10 oz. of water.

Vesper.—Seven stools in the day, with rather more appearance of dark-grey fæces ; the tongue is cleaner, but his belly is retracted.

The enema and pills repeated, as last night.

Apr. 6th.—He has had no stool since the enema, and has passed the night without pain ; otherwise, there is no change.

Give 2 oz. of the mixture prescribed on the 4th, at 8 A. M., and repeat at noon.

Let him take two pills, such as were prescribed on the 2nd, at 2 o'clock P. M., and repeat at 4.

Vesper.—He has had five stools during the day, altogether not 24 ounces ; a dark brown fluid, without the odor of putrid blood, which formerly existed.

Let him take two pills as on the 4th, at 8 o'clock P. M., and repeat the dose at midnight.

R. Plumbi Acetatis gr. v.—Tinct. Opii ʒ i.

Aquæ Fontis ʒ ii. misce, for an enema at 9 P. M.

Apr. 7th.—One scanty stool in the night, like those last reported ; he slept tolerably.

R. Olei Ricini ʒ i at 6 A. M.

Repeat the enema and pills at night, as yesterday.

Apr. 8th.—He had five stools yesterday, of a yellowish color, without blood, and having little fœtor ; one stool of the same sort in the evening ; his tongue is clean and moist.

Give 1 oz. of the mixture prescribed on the 4th, at 8 A. M., and repeat the dose at 11 o'clock.

The diet heretofore has been tea, bread, and sago.

Arrow-root and 3 oz. of Port-wine are now added.

Vesper.—He has had four copious, fluid, feculent, greenish stools in the day, without any blood or mucus ; and he has voided urine.

Laudanum ʒ ss. in 2 oz. of water, for an enema at bed time.

After this date, he was allowed a small quantity of soup for dinner, and 3 oz. of Port-wine daily.

Apr. 9th.—He slept, and was not at stool during the night ; but has had one moderate, fluid, dark-brown evacuation this morning. Belly much retracted ; tongue moist and clean at the edges, still somewhat brown in the centre. Mouth not sore from the mercury.

R. Sulphuris Loti—Pulv. Gummi Acaciæ āā ʒ i.

Aquæ Cinnamomi ʒ i. misce : to be taken at 6 A. M.

Ordered to take two of the pills prescribed on the 2nd, at 8 o'clock P. M., and to repeat the dose at midnight.

Rather more farinaceous food allowed, and a coffee-cupful of soup at noon.

Apr. 10th.—He vomited both doses of pills last night, had three moderate fluid stools, of nearly natural color in the day, and two small stools of the same sort at night. No pyrexia, and the tongue is cleaner; but he is very weak. Repeat the sulphur as yesterday, daily.

Apr. 11th.—Two moderate loose stools, with the odor and appearance of sulphur.

Apr. 12th.—He had four natural loose stools in the 24 hours; his tongue is clean, moist, and of morbid red color.

R. Extract. Colocynth. Comp.—Pil. Hydrarg. āā gr. v. to be repeated daily.

Apr. 15th.—He had two stools on the 13th, and one on the 14th, nearly natural, and of healthy appearance. Has had three loose feculent stools, of reddish color, with some mucus, in the last 24 hours. Sulphur to be given daily as ordered on the 9th.

Apr. 18th.—His diet has been gradually increased, and he has had two natural loose stools daily: this morning he had one scanty stool, and was griped; therefore, instead of sulphur, he was ordered to take, daily in the morning,

Magnesiae \mathfrak{z} i.—Pulv. Rhei \mathfrak{z} ss.—Pulv. Zingiberis, gr. v. in Aquæ Menthæ \mathfrak{z} i.

On the 21st he was rather too much purged, and slightly griped, but the stools were of a healthy character: the belly was still flat and retracted, but free from pain, except the slight griping when at stool.

Former medicine omitted.—An anodyne enema was ordered at bed-time.

Apr. 22nd.—He had four fluid, dark-brown stools in the night ; is free from pain, but much weaker.

A blister to the belly, which is ordered to be kept open.

R. Pulv. Ipecacuanhæ—Extract. Gentian.—Pil. Hydrarg. āā gr. ii. in a pill : to be taken 3 times a day.—Pulv. Doveri, ʒ ss. in Aquæ Cinnamomi 3 i. at bed-time.

Apr. 23rd.—He had six stools during the day, and four at night, a loose feculence, of dark-grey color, without blood or mucus, and voided with very little griping. The tongue is moist, its centre coated with a little white mucus. He perspires much, and is becoming weaker, but any increase of food causes uneasiness and oppression ; various kinds of farinaceous food with milk have been cautiously tried, but he cannot take them.

Ordered to take ʒ i. of Sulphur, with Mucilage, in Cinnamon water in the morning ; and to have at night Pil. Hydrarg. gr. v.—Opii gr. i. at 8 p. m., and repeated at midnight.

Apr. 24th—He slept tolerably well, and had only one fluid feculent stool since eight last night, it is of a greenish color and moderate in quantity. He is free from pain or pyrexia, perspires much, and is becoming daily weaker.

R. Vini Opii 3 ss.—Acid. Nitric. 3 i.—Sacchari 3 i. Aquæ Fontis lb. i. misce. A wine-glassful to be taken every 2 hours.

Died in the afternoon.

Dissection.—Subject exceedingly emaciated. Some old adhesions were observed in the right side of the chest. The liver of natural color, its surface deeply marked with the impressions of the cartilages of the ribs, as an œdematous limb is indented by pressure; its structure rather soft, but otherwise quite healthy. The gall-bladder rather diminished in size, and covered with a false membrane of organised lymph, apparently not of recent formation. There was some vascular turgescence, and serous infiltration, at the root of the mesentery and mesocolon. Numerous glands of the mesentery and mesocolon enlarged and of pale-pink color. The small intestines were in a healthy state. The large intestines were slightly thickened generally, but more diseased in that manner at the cœcum; and the cicatrices of numerous ulcers were very distinct in that intestine, as well as in the ascending and transverse portions of the colon: the sigmoid flexure of the colon was slightly thickened, and the mucous membrane at that part vascular and softened.

CASE X.—Cockburn, Æt. 53, a stout man of dark complexion, two months in Bengal, a ship's carpenter, residing on board. Was attacked with dysentery in the beginning of September, and voided blood and slime. He was treated on board ship, at first with salts and castor oil; then with laudanum and brandy; and lastly he was salivated, by taking 15 grains of calomel daily, for five days. The calomel caused a very sore mouth, but he felt no benefit from it; on the

contrary, the dysentery became daily worse, and therefore he was sent to the General Hospital on the evening of the 27th of September, 1828; having had, in 24 hours, as many as 32 scanty stools, which consisted of a fluid, grey feculence, mixed with blood and slime; great pain was caused by pressure over the cœcum, and at the sigmoid flexure of the colon; he had a sense of weight in his chest, and a shortness of breathing, but no pyrexia.

Apply twenty leeches to the belly.

R. Pulv. Ipecac. gr. vi.—Extract. Gentian. gr. iv. in 2 pills, at 6 p. m. and repeat at midnight.

September 28th.—Nauseated by the pills; only six stools, (he has of late usually had above 12 stools each night,) the morbid sensibility of the lower belly is little abated.

Apply 12 leeches to the iliac regions.—Tepid Bath 2 hours after the leeches. Repeat 2 pills as above at 7 a. m.—Pulv. Jalap. Comp. 3 i. at noon; and two more pills at bed-time.

Sept. 29th.—He had fourteen copious evacuations after the jalap; but since the last dose of pills, only two stools, consisting of a light-grey feculence, with little slime or blood.

Treatment repeated as yesterday.

Sept. 30th.—Eleven scanty stools after the jalap, with little slime and no blood. One scanty fluid stool of a grey color in the night, after the pills. There is a distinct fulness in the region of the cœcum, and pressure over the sigmoid flexure of the colon

causes pain ; he suffers from some thirst, and loss of appetite, but no pyrexia.

Ordered to take Sulphur 3 ii. with Mucilage 3 ss. and water 3 i. in the morning. Tepid Bath at noon.

Apply a blister over each iliac region.

Oct. 1st.—He only had one stool in the day, and two at night ; a loose feculence of natural color, with a strong odor of sulphur.

The morning medicine repeated.

After this date, the Ipecacuanha and Extract of Gentian pills were repeated for five nights ; and he took no other medicine, except twice sulphur, and four times a mild purgative. He left hospital well on the 14th of October.

CASE XI.—Thomas Sweeney, *Æt.* 29, a volunteer from H. M. 30th to 26th Regiment : of middle size, and dark complexion ; has been nine years at Madras, from whence he has now arrived, after a voyage of 22 days, during the last 15 of which he has had severe dysentery. He was sent to the Hospital on the evening of the 4th of Nov. 1830. He has been bled once, and has been in a state of salivation for the last five days ; his mouth is now very sore, and the gums are much ulcerated. He has been 37 times to stool in the last 24 hours, the evacuations consist of blood and mucus, with some feculence ; he makes water freely, therefore, that part of the intestine near the bladder is probably not the chief seat of the disease. Belly soft and flat generally, but there is some fulness towards the right hypochondrium.

R. Pulv. Ipecac.—Extract. Gentian. āā gr. iv. in two pills.

November 5th.—He was only six times at stool in the night, the evacuations are copious and feculent, with some slime and blood; his stools are more free than of late, and he has less pain than at any time since his illness. No food allowed except tea and bread.

Repeat two pills, as above; morning and night.

Pulv. Jalap. Comp. 3 ss. at noon.

Nov. 6th.—He had four free evacuations after the jalap, but was not up at stool during the night; belly soft, and he is much easier. Diet, bread and milk.

R. Pulv. Jalap. Comp. 3 ss. at 7 A. M.—Two pills as above at bed time.

Nov. 7th.—The jalap procured four stools; and he had one natural loose evacuation during the night.

Treatment repeated.

Nov. 8th.—He had one free stool. Medicine omitted. After this he took a mild purgative twice, and was discharged on the 15th November, 1830.

CASE XII.—John Park, Æt. 22, a tall and stout recruit, of light complexion, just arrived from England: he is sent from the ship to the Hospital, in a state of extreme distress, from frequent purging and tenesmus; rising 20 times to stool in 24 hours, and voiding blood. He has taken calomel which has salivated him severely, and he has had a blister on the lower belly; but his disease is becoming worse every

hour. Admitted at 9 P. M. November 13th, 1830. He has now slight pyrexia; the tongue is white and moist; pulse 98 and soft; the abdominal muscles are tense.

VS. ad lb. i. ss. immediately.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. āā ð ss. in pills, at 9 P. M.

November 14th.—Has felt better since the blood-letting; he had eight dark-colored stools in the night, with some blood and mucus, belly softer; he is now perspiring. Pulse 96 and soft.

Apply 16 leeches to the epigastrium.

P. Jalap. Comp. 3 i. at 7 A. M.

R. Pulv. Ipecac.—Extract. Gentian. āā ð i. misce et divide in pil. No. x. Two pills every three hours, beginning at noon.

Nov. 15th.—He had eight dark-grey stools in the night, moderate in quantity, mixed with some slime and blood; pulse 82 and soft. He is in all respects much better.

Nearly the same treatment was continued daily, with some occasional variation in the purgative; an anodyne enema was given for three nights at bedtime, and he had one dose of 10 grains of Dover's powder. He recovered, and was discharged well on 2nd December, 1830.

CASE XIII.—Serjeant Avery, Æt. 37, a tall and stout man, many years a soldier, recently landed from England: he has been ill with dysentery for ten days, and his mouth has been sore from calomel-

for seven days, but he is not getting better ; and therefore he was sent to Hospital at noon, on the 15th November, 1830. He goes to stool 20 times in the 24 hours, and voids much blood ; his skin is moist, and pulse quick.

R. Pulv. Ipecacuanhæ—Extract. Gentianæ āā gr. v. in two pills, to be taken at noon, and repeated at 6 P. M. and at midnight.

November 16th.—He has had eight stools since admission, consisting chiefly of blood and pus, altogether not amounting to two pints. Pulse 72 and soft ; there is some fulness of the lower belly, and pain in the region of the bladder, which is increased by pressure ; urine very scanty.

V.S. ad lb. i.

R. Pulv. Jalap. Comp. ʒ i. at 7 A. M.

Sixteen leeches to the lower belly, at noon.

Vesper.—He has had six stools during the day ; a fluid, dark-grey feculence, with some slime and blood. No pyrexia, and no pain, except when he is at stool.

To take two pills at bed-time, as prescribed on the 15th.

Laudanum ʒ i. in 2 oz. of water, as an enema at night.

Nov. 17th.—He had no stool during the night ; the flow of urine is increased ; he complains of some thirst, and a full inspiration causes pain in the belly.

The medicines prescribed on the 16th were continued with little variation, except an occasional dose of Colocynth and Blue Pill, when the stools were deficient in quantity. He was discharged on the 28th November, 1830.

I have met with a vast number of cases of dysentery, in which mercury had been used, so as to cause salivation, without curing the disease ; and have almost always found benefit from employing ipecacuanha and extract of gentian, as above prescribed : taking care to use the lancet, even at late periods of the disease, (if the patient had not been sufficiently bled at the beginning,) in those cases where there was any pyrexia, or distinct evidence of local inflammation ; and the general health admitted of bleeding.



SCORBUTIC DYSENTERY.

Persons suffering from that disorder of the constitution, denominated in this country land-scurvy, are very liable to dysentery at the latter end of the rains, and when the cold-weather is commencing. The land-scurvy here differs from the *Porphyræ Hæmorrhagica* of Mason Good, in not being so often accompanied by the profuse flow of blood from slight causes. The disease is found to prevail at many low and unhealthy stations in Bengal ; and occasionally appears at almost every place situated near a *terrac*, (or morass,) or on the low and marshy banks of a river. Land-scurvy often affects natives ; but Europeans are not entirely exempt from its attacks. Those persons are most liable to suffer from this disease, who live on a poor, insufficient

vegetable diet, and do not take exercise : it frequently attacks native prisoners in the jails, at low swampy districts.

Much mercury, given in the dysentery which affects persons laboring under this sort of disorder of the constitution, generally proves exceedingly injurious ; and when dysentery occurs in subjects whose constitutions are suffering from *Porphyra Nautica*, or sea-scurvy ; the effects of mercury are not less destructive. The practitioner who trusts principally to calomel for the cure of dysentery, is in a sad predicament when he has to treat scorbutic dysentery ; or rather the patient is in a sad predicament : for when scurvy and dysentery are combined, the smallest quantity of mercury is often very injurious*.

In those cases of dysentery which occur in persons whose constitutions are labouring under the effects of scurvy, we can safely go on with mild purgatives of compound jalap powder, in such doses as may effectually carry off the vitiated secretions, without irritating ; and use the *Ipecacuanha* and *Extract of Gentian*, as now directed : while a more restorative diet is allowed, than would be consistent in cases not complicated with a scorbutic diathesis.

* If authority were requisite, to prove the pernicious consequences of administering mercury, to patients in whom the scorbutic diathesis exists ; we might refer to Sir Gilbert Blane's *Medical Logic*, 3rd edit. p. 272. It is there stated, that in the year 1720, four hundred scorbutic patients were subjected to courses of mercury, and all died. Numerous other authors might be cited on this subject.

As it is the constitutional disorder, which requires to be rectified, small quantities of well-cooked meat or fowl, with boiled vegetables and some beer or wine, can in these cases be given much earlier than in ordinary cases of dysentery. Still I would say, in all cases, beware of an undue quantity of food. It sometimes happens that a moderate degree of local and general depletion is requisite in cases of scorbutic dysentery.

CASE XIV.—Alexander Knight, aged 27, of middle size, and light complexion. A sailor, recently arrived in Calcutta, after a voyage of five months. Admitted into the General Hospital, in the evening, on the 11th January, 1830. He has been ill 12 days with a purging, and has usually had in the 24 hours, thirteen watery stools, mixed with blood and mucus : there is no pyrexia. He has scorbutic spots on the legs, swollen gums, and a great degree of scorbutic induration, at the outside of the right knee.

R. Pulv. Ipecac.—Extract. Gentian āā 3 ss. misce et divide in Pil. No. xii.—Two pills to be taken at 7 P. M. and repeated at midnight.

Low diet ; with sago, and three oz of wine.

January 12th.—He had nine copious, watery, dark-green stools during the night, mixed with blood and mucus, but thinks he is rather better.

Repeat two pills as above ordered, three times a day.
Tepid bath at noon.

Jan. 13th.—Four watery stools, of grey color, without blood or slime, in the day ; one evacuation of

the same sort at night. There is no pyrexia, and he has no pain in the belly.

R. Pulv. Jalap. Comp. 3 ss. at 7 A. M.

Let him take one pill as above ordered, six times a day, at intervals of two hours, to begin at 10 o'clock A. M.

Jan. 14th.—He had only four stools, in the 24 hours; the evacuations are nearly natural.

Let him take two pills, night and morning, daily.

Jan. 18th.—Bowels regular; scorbutic symptoms decreased. Medicine omitted. Allowed a diet of stewed chicken, with boiled vegetables, and 3 oz. of Port wine daily. He was discharged well on the 15th February, 1830.

The comforts of an airy ward, in a good Hospital, with warm baths, and regulated diet, go far in aiding the cure of all cases of dysentery; and, more especially, in the scorbutic dysentery of men landed from ships after a long voyage. The most scientific medical treatment on board ship is liable to be constantly contravened by exposure to cold, when the patient goes to stool; as well as by want of almost all the juvantia, which are easily and constantly procurable at an Hospital.



DYSENTERY CHIEFLY AFFECTING THE RECTUM.

There are some cases of dysentery, in which the rectum and lower portion of the colon only are

affected ; the patient has almost incessant calls to stool, with dreadful tenesmus and straining ; the evacuations are not generally very scanty, but they consist of viscid tenacious mucus, that adheres strongly to the bottom of the stool-pan. In the early stages, and more acute forms of the disease, the color of the evacuations is a reddish brown ; and occasionally the stools appear to consist chiefly of blood : in other cases of longer duration, and less acute description, the color of the evacuations is pale, and often the mucus is quite white, resembling mucilage of gum tragacanth mixed with chalk : this has been called the white flux. There is usually great desire to make water, and frequently no urine is secreted ; the strangury adding greatly to the patient's distress. The constitutional symptoms of an inflammatory nature are not generally very urgent ; but the anxiety, restlessness, irritability, and strangury, are exceedingly severe. The disease is seated in the rectum, and the inflammation frequently extends to the urinary bladder.

In the treatment of this kind of dysentery, blood-letting and constitutional remedies should be employed in the early stage, quite to the extent that the indications of pyrexia or of local inflammation may demand ; and leeches applied to the anus are often very serviceable : but the disease very generally remains for some time after that treatment has been fully practised. The ipecacuanha, so generally useful in other forms of dysentery, only

helps to mitigate some of the early symptoms of this description of the disease ; but the irritation of the rectum, and the strangury, are often very little influenced by this remedy. The treatment which has proved most efficacious in the latter stage of this complaint, after due depletion, is to give moderate doses of blue pill and compound extract of colocynth, in the morning ; and to administer 3 i. of laudanum, with 3 ii. of cold water, as an enema at bed-time.

Some patients, with this description of disease, derive much benefit from inserting about 3 ss. of Goulard's ointment into the rectum ; which has a good effect in healing the ulcers that occasionally exist just within the sphincter ani, and keep up much irritation quite low down in the intestine, exciting constant painful contractions of the levators and sphincter ani ; and producing very frequent calls to stool.

Doubtless the affection of the rectum, and lower part of the colon above described, may exist at the same time with very extensive disease of the colon and cœcum ; but, I believe it is more generally limited in its extent : the rest of the great intestines being either sound, or affected only in a minor degree.

CASE XV.—James Cuddy, Æt. 23, a slight-made man, of light complexion, six years in India. Had a dysenteric purging with blood, at Poonamallee, in September, 1830 ; but concealed his illness and came to Calcutta, with the disease increasing during the voyage, so that on arrival at this place,

on the 12th October, he had 18 calls to stool in 24 hours, voiding only a little blood and slime: his belly was soft, flat, and pained by pressure. Some enlargement and induration at the sigmoid flexure of the colon existed: there was also great thirst; his face was flushed. The pulse was 72 and soft; tongue moist and loaded with grey mucus: he passed but little urine, with straining and pain in the bladder. There was little general heat of the surface.

On admission he was bled from the arm, had leeches applied to the belly, went into the tepid bath, and took one drachm of compound powder of jalap. The blood was buffy; he had nine stools during the day, mixed with some blood, and felt better. Ipecacuanha, with extract of gentian, and blue pill, each five grains, was given at 5 P. M. and repeated at 8.

On the 13th of October, the jalap and pills were repeated, and he had twice an enema of a pint of cold water.

Oct. 14th.—No material change for the better, the calls to stool are very frequent, and he is passing much white mucus; his chief distress arises from tenesmus and strangury.

Extract. Colocynth. Comp.—Pil. Hydrarg. āā gr. v. in the morning.

Ol. Ricini 3 i. at noon. An enema of cold water twice in the day, and Goulard's ointment inserted into the rectum.

From this latter remedy, he derived much ease; he had only four natural loose stools during the day,

and two at night ; still he made very little urine. The treatment was repeated on the 15th.

Oct. 16th.—He had frequent calls to stool in the day, with much straining ; the evacuations consist of natural fæces with slime.

Ordered to take Extract. Colocynth. Comp.—Pil. Hydrarg. āā gr. v. in the morning ; and an enema was given at bed-time, composed of Tinct. Opii ʒ i. in Aquæ Font. ʒ ii.

After which he only rose to stool once in the night, and made urine freely.

The same treatment was repeated daily for four days. He was convalescent on the 19th October, and well on the 25th.

CASE XVI.—William Davis, Æt. 36. A tall and rather thin, but strong man ; 13 years in India. Had a quotidian intermittent fever, with head-ache, from the 1st to 12th October, 1830 ; he was then seized with a purging, which obliged him to go to stool 50 times in the day, and at first he voided a dark-brown slimy feculence in large quantities : after two days, the stools became very scanty, so that although he went 40 times to stool in a night, the evacuations did not amount to a pint, and consisted of a brown bloody slime ; his abdomen was soft, elastic, and rather full ; pressure over the lower belly gave pain : there was not much pyrexia, but he suffered from great irritation in the rectum, and a painful straining to make water, which went on increasing till the 16th of October, and then there was a suppression of urine.

He was bled from the arm, and had 16 leeches applied to the belly. He was ordered to take Calomel.—Extract. Colocynth. Comp. ãã ð ss. in the morning; had a warm bath at 10 o'clock, and took castor oil, one oz. at noon.

Pills composed of Ipecacuanha, Blue Pill, and Extract of Gentian, each five grains, were given at 5 p. m. and repeated at 10 o'clock.

A very spare diet was ordered. The pills last mentioned were repeated daily for three days, and he had a dose of castor oil, or compound powder of jalap at noon; by which treatment the number of stools was much decreased, and he felt easier: still no urine was secreted, though he suffered from a distressing inclination to make water.

He was now ordered to take blue pill and compound extract of colocynth, each five grains, every morning; and an anodyne enema of one drachm of laudanum in two ounces of water was administered every night at bed-time. After following this treatment for two days, using a warm bath; and taking no food but tea and bread in very small quantity, the secretion of urine was restored: he had only four stools during the night; the greater part of which was a white adhesive slime, like mucilage of gum tragacanth mixed with short cotton.

The enema was only used for two nights more, and the pills repeated every morning; he then had three natural loose stools in the day, and felt well, but weak. His food was gradually increased; and he took no medicine after this, except one dose of

colocynth and scammony in pills, and two doses of rhubarb. He was well on the 24th of October.

In the two last cases, I consider the disease to have been seated principally in the rectum, which was indicated by the tenesmus and painful strangury, with suppression of urine. In all such cases very great benefit is usually derived from the enema of laudanum in a very small quantity of water, given at bed time; while we take care to purge the patient moderately in the mornings with compound extract of colocynth and blue pill. Enjoining a very spare diet; and above all, bleeding freely while local inflammation or pyrexia exist.

In some cases, where the patient is suffering almost as much from tenesmus and strangury, as in the two examples last cited: but also voiding much pure blood by stool: I have seen great advantage derived from the administration of 10, 15, or 20 grains of sugar of lead, in an injection of 10 ounces of water every 8 hours; and one drachm of laudanum may be added, to an enema of this sort once in the 24 hours.

PARTICULAR AFFECTIONS OF THE CÆCUM DURING DYSENTERY.

There are several local affections, referrible to the cæcum, which are liable to take place during dysen-

tery ; and which do in fact take place so frequently, among patients suffering from the severer forms of the acute dysentery of Bengal, that they deserve particular mention. These local affections to which I allude, depend on various modifications of disease, and may be described under three heads.

1st. Thickening and induration of the cœcum : sometimes an abscess exists between that intestine and the iliacus muscle.

2nd. Adhesion of the lower edge of the omentum majus to the cœcum ; which has been alluded to at page 64 of this chapter, as giving rise to symptoms, which are liable to be mistaken for hepatic abscess.

3rd. Destructive ulceration of the valvula ileo-colic., and consequent intus-susception of the lower portion of the ilium into the cœcum, as already described at page 63, of this volume.

The circumstances tending to give a peculiar character to those diseases referrible to the cœcum, which occur during dysentery ; are, the valvular apparatus at the termination of the ilium ; and the fixed situation of the cœcum in the right iliac region, where it is bound down on the iliacus muscle, by the peritoneum, while its posterior part is not covered by that membrane.

A discreet attention to the nature and treatment of these several local affections, is of vast importance in the cure of many cases of dysentery and its sequelæ ; and a neglect of them, leads to almost certain

destruction of those patients in whom they occur*. Still, no difficult or complicated employment of remedies is requisite; for all these local affections depend on the degree of severity, on the continuance, or on the extent of local inflammation at the part affected: to this principally, the especial attention of the practitioner is requisite; and it is only by the most undeviating perseverance in the employment of means for subduing local inflammation, (applied especially to the part affected,) that the disease can be cured. At the same time, the practitioner must not entirely lose sight of the general treatment of dysentery; and of the state of constitution connected with any extensive ulceration or sloughing, which may exist at other parts of the intestine. A few of the cases which authorise me to make these observations, may

* It is probable that a complete knowledge of the actual local affection in many of these cases, has been prevented, or retarded by the extensive ravages of disease, and by the destruction of parts that takes place towards the termination of many fatal cases: in consequence of which, and the cohesions of different viscera, and alterations in the appearances of parts, it is difficult to trace the various stages of the disease, except they be carefully observed in a multitude of cases, with the opportunities afforded at a large hospital. Moreover, the termination of most of these cases in sloughing, or mortification of the intestine, by shewing at once a sufficient and unquestionable cause of death; has probably very often prevented a patient inquiry into the nature and gradual progress of these cases, at earlier periods of the disease; when a careful, persevering, and discriminating treatment might, in some of the cases, have averted the fatal event.

be adduced ; and the more perfect elucidation of the subject, left to future industry.

I will only propose in this place, to direct attention to those diseases of the cœcum, which are more or less immediately connected with, or dependent on dysentery : being desirous of avoiding any disquisition, respecting abscesses which occasionally form in the cellular structure of the iliac fossa*, between the intestine and iliacus muscle ; or the enlargement and thickening of the cœcum, from effusion of coagulable lymph ; in consequence of acute or sub-acute inflammation, independent of dysentery.

When a considerable enlargement of the cœcum takes place during dysentery ; it is usually first noticed about 10 or 14 days after the commencement of that disease : and I have observed it most frequently in firm and muscular Europeans of dark complexion, who were below middle age. The disease is not usually attended with so much pain, as to make the

* The most ample information on the subject of abscess in the right iliac fossa exterior to the coats of the intestine, which I have met with, may be found in the valuable observations of Baron Dupuytren published in the *Lancet* of 16th Feb. 1833. The same subject is also ably treated by Messrs. Husson and Dance, in the 4th vol. of the *Repertoire*, and by M. Meniere, in the 17th vol. of the *Archives Generales*. Mr. Ferrall's paper on Phlegmonous Tumors in the right iliac region, connected with constipation of the bowels, is also full of interest and valuable information. It will be found in the 36th vol. of the *Edinburgh Medical and Surgical Journal*.

patient complain particularly of the part affected; and unless the practitioner habitually examine the abdomen of those he is treating for dysentery, he will occasionally be told of "the swelling," at a period of this disease when the patient is past recovery: or he will find on dissection such a mass of disease and inflammation, with induration in the right iliac region; that he will be surprised how it could have escaped his notice, during life, when it must have been very palpable. Except in fat persons, the rounded, doughy, inelastic tumefaction of the cœcum, produced by much thickening of the coats of that intestine, is easily detected by examination with the hand; and, in fact, the tumefaction at the right iliac region is often visible on inspection. This affection depends on a great degree of interstitial deposit of coagulable lymph, between the coats of the intestine, and in the cellular structure between the cœcum and iliacus muscle.

In attending to these indications of organic disease and thickening of the coats of the cœcum, we must remember that an intumescence and hardness in the right iliac region may be caused by an accumulation of hardened fæces in that portion of the intestinal canal, which may be removed by purgatives and enemata. An elastic fulness in the same situation may be produced by flatulence, which is readily in some degree removed by pressure of the hand; the flatulent swelling is more commonly observed when the contents of that portion of the

intestine are in a fluid state, and a gurgling noise is perceptible when pressure is made for some time and abruptly withdrawn. The more permanent enlargement arising from organic disease, may be readily distinguished from the states now mentioned.

The enlargement of the cœcum requires to be treated, by the daily repetition of leeches to the part, as long as any signs of local inflammation attended by induration remain ; fomenting, and applying hot poultices to the leech-bites while they are bleeding. After the morbid sensibility of the part is removed, and the tumefaction much reduced ; it is requisite to disperse the remaining induration, by a blister kept open over the part, and by just such a course of Plummer's pill, and extract of colocynth, at night ; followed by compound powder of jalap, or sulphur, in the mornings ; as would be suitable to remove induration that had immediately followed an inflammatory swelling on the arm, or thigh, or any other part of the body : only, here we must remember, that no part of the disease can be left unsubdued, without hazard to the patient's life. I have made no mention of blood-letting from the arm, in the above plan of treatment ; concluding that the early stage of the dysentery, will have been properly treated by blood-letting, and by the other essentials to the cure of that disease, already described. There is no case in which rest in the horizontal posture is more requisite, than in these affections of the cœcum ; and a spare diet of milk, with sago or gruel, in very small quantities only,

should be advised; as directed for the worst cases of acute dysentery.

CASE XVII.—Moffett, aged 33, two years in India, and employed as a clerk in an office. A tall thin man, of dark complexion, and red face, subject to bilious and febrile attacks, in consequence of intemperance in drink. Admitted into the General Hospital, on the evening of 19th July, 1831. He stated that for five days past he had suffered from very distressing diarrhœa, and went as much as 30 times to stool in 24 hours; he had not observed any blood in the evacuations. On the day of admission, he had only two stools, and there was but little pyrexia: his face was flushed, belly doughy and inelastic. He was bled from the arm to lb. iss. and ordered to take calomel 10 grains, with extract of hyoscyamus 4 grains, at bed time.

July 20th.—Blood buffy: he had 10 stools during the night; scanty, fluid, and of bronze color, without blood. Pulse 96, and full; his tongue is little coated with yellowish-grey mucus, and rather dry. He has pain in the region of the cœcum, and there is a slight degree of hardness at that part: the whole belly is doughy, and inelastic, but not tumid.

V. S. ad. 3 xx.

R. Extract. Colocynth. Comp. ʒ ss.

Pil. Hydrarg. gr. v. misce fiant pil. ii. statim sumend.

R. Pulv. Jalap. Comp. ʒ ss. at noon.

Apply 10 leeches to the belly, in the afternoon.

July 21st.—Blood drawn yesterday, not buffy. He has had seven very scanty stools, and vomited often. The tongue is white and moist; the induration in the region of the cœcum which was observed yesterday, has increased.

Apply 16 leeches over the region of the cœcum.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. āā gr. v. misce fiant pil. ii. statim sumend.

Vesper.—He has no stool during the day, and there is not much pyrexia; tumefaction at the region of the cœcum has not decreased.

Apply 10 leeches over the region of the cœcum.

R. Extract. Colocynth. Comp.

Extract. Hyoscyami

Pil. Hydrarg. āā gr. v. misce fiant pil. iii. H. S. sumendæ.

July 22nd.—He was four times at stool in the night, and voided about 24 oz. of a reddish brown, bilious water: the tumor at the region of the cœcum is rather larger; pulse 108, and soft; pyrexia, trivial; and he is perspiring. The tongue is little loaded, white, mealy, and rather dry.

Apply 10 leeches over the region of the cœcum and let him take

Pulv. Jalap. Comp. 3 ss. at 6 A. M.

Vesper.—He had four foetid, fluid, dark-brown stools, altogether not a pint: urine kept separately as ordered; it is very high colored. Tumefaction at the region of the cœcum increased since the morning, and more painful on pressure; there is also some

general fulness of the belly. Tongue as in the morning, but rather more dry. Pulse 120, and weak; skin cool; extremities cold, and perspiring; there is slight morbid heat of the head, and he is at times incoherent.

Apply a blister over the region of the cœcum.

July 23rd.—During the night, he had only one scanty, watery, reddish stool, not eight ounces in quantity. Pulse 132, hands and legs cold; there is rather more heat of the head, and a little more flatulent distention of the abdomen.

R. Ol. Ricini $\bar{3}$ i.

Vesper.—Had three dark, reddish-brown, watery stools, with very offensive odor; there is no material change in the condition of the tongue, or pulse; rather more heat of the head, and the belly is hot. The tumefaction at the region of the cœcum has increased in size.

Apply four leeches round the blister over the cœcum.

To take five table-spoonsful of very thin arrow root, every two hours.—Cream of Tartar drink.

He was delirious all night, and died at 4 A. M. on the 24th July.

On post-mortem inspection, the subject was not much emaciated. Morbid vascularity of the omentum majus, and mesentery was observed; as well as of the parts behind the peritoneum lying over the spine, and towards the ascending colon, and cœcum. Slight morbid vascularity of the small intestines existed, and five inches of the lower portion of the

ilium were adherent laterally, by the side of the cœcum; and that intestine was adhering to the peritoneum anteriorly. Numerous deep and large sloughing ulcers, covered nearly the whole interior of the cœcum; the coats of that intestine being enormously thickened. One of these sloughing ulcers was found to penetrate into that part of the ilium which was adherent longitudinally by the side of the cœcum. The termination of the ilium projected considerably within the cœcum, and its whole circle was ulcerated and sloughing. The ascending colon was free from ulceration: there was one small foul ulcer, with grey elevated surface, at the centre of the transverse arch of the colon; and numerous small ulcers of the same sort at its descending and sigmoid portion, which part was very much contracted in size, and quite pale externally; there was very little inflammatory appearance about the small ulcers at this contracted portion of the colon. The duodenum and jejunum were much loaded with a greenish bilious fluid: the ilium was nearly empty, its contents had probably passed through the ulcerated hole into the cœcum, at a late period of the disease. The liver was somewhat enlarged, and of a dusky-drab color; its section not bleeding much; the fissure in which the gall-bladder is lodged was large and deep; the gall-bladder smaller than usual, elongated, and filled with dark-green bile, and its exterior covered with a thin adventitious membrane.

CASE XVIII.—A gentleman, 23 years of age, tall, muscular, and of dark complexion; two years in India, of active habits, and occupied in mercantile affairs, at a station about 160 miles from Calcutta : was attacked with dysentery on the 26th September, 1830. He had frequent scanty stools, mixed with blood and mucus ; at the same time he lost his appetite, and became languid and feverish. He tried to cure his complaints, by taking small doses of purgative salts in the mornings, and weak brandy and water at bedtime. His dysenteric ailments continuing to get worse, he resolved to come to Calcutta, for medical advice. During a week that he was in his boat on the river, he suffered extreme misery from constant tenesmus, and frequent calls to stool. He voided much blood and mucus, and was affected with nausea to such degree that he could take no food, and subsisted on tea alone, for a week. The purging had almost ceased on the 3rd of October, though he was obliged to go to the commode ten times a day ; and sometimes he voided a little blood or mucus, with severe tenesmus.

On arrival at a friend's house in Calcutta, on the morning of the 5th October, he felt faint and weak, and was induced to eat some fish and rice, which produced a distressing sense of distention in the belly. When I first saw him, at noon, he was suffering from considerable pyrexia, his forehead was hot, pulse 98, neither full nor hard ; the tongue was moist, but exceedingly loaded with brown-colored mucus. The

belly was full, hard, and hot; the abdominal muscles tense; there was a large and distinct oval tumefaction in the right iliac region, which could be seen as well as felt, when the patient was placed on his back; there had been no considerable stool for the last two days.

He was immediately bled from the arm to lb. ii. and ordered to remain quiet in bed.

R. Calomel. \mathfrak{D} ss.—Saponis Duri—Cambojiæ āā gr. i.
Extract Colocynth. Comp.—Scammoneæ āā gr. ii.

In three pills, at noon.

Give Pulv. Jalap. Comp. 3 i. at 2 P. M.

Twelve leeches were applied over the cœcum at 4 P. M. and the part was fomented and poulticed afterwards.

R. Pulv. Ipecacuanhæ—Extract. Gentianæ.

Pil. Hydrarg. āā gr. iv.—to be taken in pills at 6 P. M. and repeated at 9, and at midnight.

October 6th.—The blood was very buffy; he had seven copious, black and slimy stools during the day; and four at night, attended with some tenesmus. There is less pyrexia; the pulse is soft and free. Tongue still much loaded with brownish mucus; the tumor in the region of the cœcum has not decreased, nor has its morbid sensibility on pressure abated: but the muscles of the belly are less tense.

Ordered to take Pulv. Jalap. Comp. 3 i. at 7 A. M. To apply 20 leeches over the region of the cœcum at 10, and to foment and poultice the part afterwards. The pills with Ipecacuanha, Extract of Gentian, and Blue Pill, each four grains; were directed to be taken at 2, and repeated at 5, and 8, P. M.

Oct. 7th.—He had six copious black stools before mid-day yesterday, no evacuation from the bowels since that time ; there is still considerable tenesmus. He is pale and weak, and there is no morbid heat of the surface except at his forehead. The tongue is much less loaded ; belly soft, flat, and elastic : the tension of the abdominal muscles has subsided, which renders the tumefaction in the situation of the cœcum more evident, though it has decidedly decreased in the last two days ; pressure about the navel gives him pain at the cœcum.

Apply 8 leeches over the cœcum ; foment and poultice the part afterwards.

R. Calomel. 3 ss.—Pulv. Ipecacuanhæ—Extract. Gentian. āā gr. xii. misce et divide in pil. vi. Two pills to be taken morning and night.

Pulv. Jalap. Comp. 3 i. at noon.

Oct. 8th.—Tumor in the region of the cœcum slowly decreases ; he had eight dark slimy stools, less copious than heretofore ; no pyrexia ; he is very pale and weak. The tongue is clean, moist, and blanched.

Apply 8 leeches over the cœcum, and repeat the fomentations and poultices.

Let him take two pills as yesterday, every morning at 7 A. M.,—and Pulv. Jalap. Comp. 3 i. at noon.

R. Extract. Colocynth. Comp.—Pil. Hydrarg. āā gr. vi.
Extract. Hyoscyami gr. iv. in pills at bed-time.

Oct. 9th.—Six stools, the same as yesterday ; the tumor of the cœcum has not decreased in the last 24

hours. Pulse 82 and soft : he is pale and weak ; the mouth is sore.

Apply six leeches over the cœcum ; and foment and poultice the part afterwards.

R. Pulv. Jalap. C. ʒ i. Tinct. Sennæ 3 ss.

Aquæ Menthæ Sativæ ʒ iss. misce. To be taken at 7 A. M., and the Pills repeated at bed-time as last night.

Gargle of Borax, Honey, Tincture of Myrrh, and Rose Water.

Oct. 10th.—He has had five stools during the last 24 hours ; the tumor of the cœcum has not decreased. Medicine repeated as yesterday, on the 10th, 11th, and 12th. On the 13th, he had a dose of castor oil, which produced frequent scanty stools of much lighter color than any voided since his illness ; and caused much uneasiness in his belly. The diet hitherto has consisted of a cup of tea, and 2 oz. of bread, night and morning ; and a coffee-cupful of arrow root twice in the day. A small quantity of milk is now given with the arrow root.

Oct. 14th.—The induration at the region of the cœcum is slowly subsiding, and he is becoming stronger.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. aa 3 ss. misce et divide in Pil. No. x. Two of which are to be taken every night at bed-time, and ʒ i. of Compound Powder of Jalap, every morning.

Oct. 19th.—Distinct induration of the cœcum still remains, though there is no morbid sensibility on pressure ; he has three or four stools daily from the jalap ; the leech-bites are healed many days ago.

Apply a Blister over the region of the cœcum, which is to be kept open for ten days, with savine cerate.—He is directed to take two tea-spoonsful of Epsom salts, in tepid water, every morning.

Diet—soup, milk, bread, and sago.

Oct. 30th.—He is well, but weak; the induration of the cœcum has entirely subsided. He recovered robust health, and is well at this day.

CASE XIX.—Robert Copeman, *Æt.* 24, formerly a sailor of the ship *Tapley*. An emaciated and pale man, who had sometime before suffered from fever. Was admitted into the General Hospital at noon on the 25th August, 1833, on the 9th day of a severe attack of acute dysentery: he went 18 or 19 times to stool in 24 hours, and voided nothing but blood; there was induration in the region of the cœcum, the rest of the belly was flat and inelastic; he had a hot skin and frequent, rather hard pulse.

He was immediately bled to lb. i. Twelve leeches were applied to the region of the cœcum, and he was ordered to take 5 grains of powdered Ipecacuanha, made into two pills, with 5 grains of blue pill, at 2 P. M., and to repeat the dose at 4 and at 6 o'clock.

Vesper.—Blood buffy. He has been many times at stool, and voids only blood. The skin is cool and perspiring, pulse 118 and soft. The induration and enlargement of the cœcum are very distinct: some induration can also be felt in the left iliac region.

R. Pulv. Ipecacuanhæ gr. ii. Pil. Hydrarg. gr. v.

Quininæ Sulph. gr. i. Opii. gr. ss. misce et divide in Pil. ii. Two pills to be taken immediately, and repeated at 10 and at 12 o'clock at night.

August 26th.—He has had only one scanty, loose, brown stool during the night ; has voided no urine : the tongue is loaded with yellowish mucus. Pulse 120 and soft ; there is less induration at the region of the cœcum. The belly is somewhat retracted, and the abdominal muscles tense.

The pills last prescribed, to be repeated every two hours for six doses. Apply a small blister to each iliac region.

Vesper.—He has had many evacuations of pure blood. Pulse 124. An anodyne enema was ordered.

Aug. 27th.—He had two fluid feculent stools during the night, altogether not four ounces ; he has voided urine for the first time since admission into hospital ; and is free from pain or pyrexia, pulse 96, the belly inelastic, and retracted.

R. Extract. Colocynth. Comp.—Pil. Hydrarg. aa gr. vi. at 6 A. M.

R. Pulv. Ipecac.—Extract. Gentian.—Pil. Hydrarg. aa gr. vi. to be given in two pills at 11 A. M. and repeated at 2 and at 5 P. M. Enema Anodyn. H. S.

Aug. 28th.—He is better. The stools are feculent, fluid, scanty, and slightly tinged with blood ; they contain also some films of mucus. His tongue is clean. All treatment repeated.

Aug. 29th.—He has had ten scanty, fluid stools in the last 24 hours, only one of which was slightly tinged with reddish mucus ; pulse 120, soft, and not very weak ; he slept and says he is better.

R. Sulphur.—Pulv. Gummi Acaciæ aa 3 i.

Aquæ Menthæ Pip. 3 i. misce, to be drank every morning ; pills as ordered yesterday to be taken at noon and

repeated at 4 and 9 o'clock P. M., daily. Anodyne enema at bed-time.

Sept. 12th.—The treatment last ordered, has been repeated, and he has continued to improve slowly up to this date; he is less emaciated, and the belly is less retracted, although only a very spare diet of bread, milk, and sago, has been used. He has had 4 or 5 stools daily, feculent and not very copious, but always mixed with some mucus, and usually having a slight appearance of blood. The abdominal muscles are still tense, which, as well as the altered appearance of the evacuations of late, indicates some internal irritation. During the last two days the stools have become very scanty, and the centre of his tongue is dry, but there is no other sign of pyrexia.

Former medicine omitted.

R. Extract. Colocynth. Comp.—Pil. Hydrarg. āā gr. vi.

Sept. 13th.—He has had six fluid free feculent stools, and has been griped.

Medicine repeated as yesterday.

Sept. 14th.—He has had very frequent calls to stool in the last 24 hours; the evacuations are not copious, they consist of fluid feculence, mixed with blood and mucus, in appearance resembling thin chocolate. The belly is flat and soft.

R. Pil. Hydrarg.—Kino āā 3 i.

Opii gr. v. misce et divide in pil. xx.

Two pills to be taken 3 times a day.

Apply a narrow blister over the course of the colon.

Sept. 18th.—The bowels have gradually become regular, and he has now two free feculent stools of natural appearance in 24 hours.

Medicine omitted.

The diet was restricted to tea, bread, sago, and milk; all of which were taken in very small quantities, up to the 18th of September; after which the quantity of food was gradually increased. On the 4th of October he was allowed bread and milk for breakfast and boiled chicken for dinner. On the 22nd of October he had chicken with vegetables, and a pint of beer. He was discharged well and strong on the 31st October 1833.

We have rarely an opportunity of examining the state of the parts, at early periods, when abscess is forming in the cellular structure between the cœcum and iliacus muscle: this description of abscess sometimes takes place in the course of dysentery; it also occurs at other times, unconnected with that disease. The existence of the small earthy mass in the abscess, in the following case, would lead us to believe that this man would probably have had an abscess exterior to the cœcum, at no very remote period; even if he had never suffered from dysenteric irritation.

CASE XX.—James Post, *Æt.* 20, a recruit of H. M. 16th Lancers; landed from Europe, and sent to the General Hospital at 8 A. M. on the 14th November, 1830. A tall man, of dark complexion; has been ill 14 days with dysentery, during which period, he has passed much blood. His mouth has been

sore for a week past, from the use of calomel; but he is still extremely ill, going to stool a dozen times in 24 hours. Pulse now 114; belly hard and doughy; abdominal muscles tense. He was ordered to be bled immediately to 20 ounces, and afterwards to go into the tepid bath. His food was restricted to tea, bread, and sago, in very small quantities.

Capt. Olei Ricini $\frac{3}{4}$ i. statim.

Vesper.—Blood buffy, and cupped; he had only two stools in the day, and feels much better. Pulse 108, and rather hard; his face is flushed, the belly full, doughy, inelastic, and somewhat hard; pressure over the abdomen gives pain.

V. S. ad lb. i.—and apply 16 leeches to the belly.

R. Calomel.—Extract. Colocynth. C. āā $\frac{1}{2}$ ss. misce, fiant pil. iv. H. S. sumend.

November 15th.—Had two stools during the night, which have not been kept for inspection. Pulse 110; tongue white and moist. Belly hard, doughy, and painful if pressed.

V. S. ad lb. i.

Let him take Pulv. Jalap. Comp. $\frac{3}{4}$ i. immediately.

Olei Ricini $\frac{3}{4}$ i. at noon, if not four times purged.

Vesper.—The blood is not buffy. He has had seven stools since the oil, but the belly remains tense.

R. Pulv. Ipecacuanhæ—Extract. Gentian. āā gr. v. misce fiant pil. ii. statim sumend.

Nov. 16th.—He had four fluid yellow stools in the night. The epigastrium still remains hard.

Apply 12 leeches to the epigastrium.

R. Pulv. Jalap. Comp. 3 ss. statim.

Vesper.—He had five scanty, grey, feculent evacuations, with very little blood or slime; there is distinct induration in the region of the cœcum. He is weak; the pulse 116, and feeble; tongue cool, moist, and white; skin cool.

R. Calomel. ʒ i.—Opii gr. i. misce, fiant pil. ii. statim.

On the evening of the 17th November, this patient was seized with Cholera, marked by deadly coldness of the skin, sinking of the pulse, and watery stools; which symptoms continued till he died at 2 A. M. next morning.

Dissection, 11 hours after death.—Subject not much emaciated. Great venous congestion was observed at the base, and dependent part of the lungs, from gravitation of blood. Omentum, mesentery, and mesocolon very vascular. Stomach and small intestines distended with gas; their peritoneal coat of pink color, very little thickened, and their mucous surface shewing no sort of morbid vascularity. Some thin subalbid mucus, such as usually occurs in the early stage of cholera, was found in the stomach and small intestines. The cœcum was distended with flatus; the coats of that intestine were much indurated, and thickened. An abscess was found outside and behind the cœcum, but not communicating with its cavity: a round earthy mass, larger than the stone of an olive, was found in the centre of the abscess. There was a communication between the appendix vermi-

formis and the abscess ; but the aperture of the appendix into the intestine was closed. The whole of the colon was contracted, except its ascending portion ; and several large ecchymosed spots of deep purple color, were observed on the exterior of the transverse portion and sigmoid flexure of the colon ; but there was no corresponding ulceration on the interior of the intestine ; though there were a few small superficial ulcers scattered over the mucous membrane of the colon at other parts.

This man, in addition to dysentery, had an abscess exterior to the cœcum, which appears to have been excited by the stone of some fruit having got into the appendix vermiformis, where it caused inflammation, adhesion of parts, and an abscess between the intestine and the iliacus muscle. Or is it more probable that the foreign body had remained long in the appendix vermiformis, and that the abscess only took place in consequence of the dysenteric irritation ?

Adhesions of the omentum to the anterior and medial part of the cœcum, are very liable to take place during the progress of the acute dysentery of Bengal ; and this local affection must be deemed important, on account of its giving rise to symptoms resembling liver disease ; as already stated at pages 64, 65 and 66, of this chapter. The practitioner, who considers dysentery as almost always the result of hepatic disorder, and esteems mercury, the principal remedy to be relied on for the cure of the former

disease ; wants only the evidence usually furnished by these cases, where cohesion of the lower edge of the right portion of the omentum majus with the cœcum exists, to confirm his opinion of the necessity of following a mercurial course ; his principal attention being directed by the deceptive indications of liver disease, which he deems the parent disorder.

Under all the circumstances above stated, and considering the difficulty of critical diagnosis in cases of this sort, we may safely conclude that the patient has a much better chance of recovery in the hands of a practitioner, who in both hepatic and dysenteric complaints, trusts chiefly to a steady persistence in the antiphlogistic treatment, for the removal of the acute stages of either disease, and of the local changes of structure, which he knows usually attend on, or follow that stage. I have very often found these adhesions of the omentum to the cœcum, in post-mortem inspection of dysenteric cases, where pain at the epigastrium and towards the right hypochondrium had been observed during the course of the disease ; and, where no actual change of structure in the liver existed. I hope the observations of practical men, will be directed to elucidate this subject, the diagnosis of which it must be acknowledged, is obscure.

CASE XXI.—Neville, aged 20, of middle size and light complexion : arrived in Bengal in the beginning of June, 1828. He suffered from low spirits while on board ship, and had pain in the region of the liver during the greater part of the voyage from England ;

for which he was bled, blistered on the side, and took calomel. About a fortnight after his arrival at Calcutta, he was attacked with pain and cramps in his feet, and slight pyrexia. Sixteen leeches were applied to his temples. Calomel and compound extract. colocynth. each 10 grains, with camboge gr. iii. were given in pills, which purged him freely. Next day he had more fever, with general tension of the belly, and he complained of pain when pressed over the epigastrium. His fever went on increasing very slowly for some days, attended latterly with bloodshot eyes, and a hot forehead. Blood was taken freely by leeches, and he was well purged with calomel and colocynth, and slight salivation was excited. By these means the fever was removed ; but he was in a few days attacked with dysentery, attended with pain under the right false-ribs, which was increased by pressure, or by the erect posture, and by raising the hand over the head ; he had a troublesome cough, and a full inspiration caused pain in the right side of the chest, and at the region of the gall-bladder. This young man had, during the greater part of his illness, a flushed face, and more fever than dysenteric patients in Bengal, generally suffer. He was bled, and leeches were applied in large numbers : mercury also was again used to such extent that salivation was produced, under the impression that hepatic abscess was impending. The dysenteric symptoms went on increasing, but were supposed to depend on an abscess of the liver ; for, though no enlargement of

that organ could be felt, still pressure near the liver, and especially at the region of the gall-bladder, gave pain, and this symptom was never entirely removed. At last he had incessant desire to remain on the stool, and voided nothing but blood, which exhaled a putrid odor; he was exhausted, and died in two months after landing in Calcutta; during which time he had the assiduous attention of a medical man many years in this climate, besides all the care I could bestow.

On Dissection, 21 hours after death—the body was emaciated: the abdomen was rather tense; the coats of the cœcum were much thickened, and its interior very extensively ulcerated. There was also much ulceration along the course of the colon. A portion of the lower edge of the omentum majus was firmly adherent to the cœcum. The lungs and liver were perfectly sound, the latter contained more blood than usual in emaciated subjects. The gall-bladder was moderately filled with dark-green bile.

Although the ulceration and destruction of the valvula coli, permitting a portion of the ilium to descend into the cœcum, so as to form an intus-susception, occurs in but a small proportion of the severest cases of dysentery, it is an important fact to bear in mind; for when it happens, the patient's life is in the utmost danger. The most active antiphlogistic measures are requisite until inflammation is subdued; after which, entire quiescence in the recumbent pos-

ture must be observed ; and the greatest forbearance in purgative medicines, and caution in allowing but little food, are requisite, until the invaginated portion shall have separated, and the consequences of adhesive union and sloughing of the intestines, have had time to become repaired. I have no reason to believe that the degree of inflammatory action requisite to insure adhesive union, when the sloughing part of the intestine separates, is ever deficient in these cases ; on the contrary, there is ground for the utmost apprehension on the score of excessive local inflammation.

CASE XXII.—The first example of intus-susception, accompanying dysentery and ulcerous disease of the valvula ileo-colica*, which attracted my notice in this country ; was in a young man, recently arrived from Europe, who came under my care at rather a late period of a severe attack of acute dysentery : but there was nothing very remarkable in the symptoms, or differing from the ordinary course of acute dysentery ; except a disposition to profuse, warm perspirations, frequent nausea, and at latter periods of the disease, a difficulty in procuring by purgatives, moderate evacuations from the bowels. The pulse was soft and weak, and the belly generally

* Intus-susception, by the descent of the lower portion of the ilium into the cœcum, may take place without any ulceration of the valvula ileo-colica, in subjects not suffering from dysentery. See *Howship's Observations on Diseases of the lower Intestines*, London, 1820 ; also *Dr. Ashburner's* case published in the *London Medical Gazette* of Dec. 7th, 1833 :—page 351.

elastic and little tumid. So entirely absent was any urgent symptom indicating particular local disease at the right iliac region, that there was not even suspicion of intus-susception during the life-time of this patient; and the region of the cœcum had not been noticed. On proceeding to the post-mortem inspection, a fulness in the right iliac region was visible, and on opening the abdomen, inflammation with a considerable deposition of coagulable lymph was seen about the cœcum; and when that part was handled, a sensation was communicated, as if there were an enormous knotted mass of lumbrici within the intestine: on opening the gut, this was found to depend on an intus-susception of the lower portion of the ilium, into the cœcum; the folded and puckered portion of the small intestine forming the intus-susception having felt like a mass of worms. There was not much ulcerous disease of the intestine beyond the cœcum. This patient had died of general constitutional irritation, before sloughing took place, and the parts implicated in the disease were remarkably distinct.

The unlooked-for result of this dissection, has been the cause of my directing particular attention to the state of the cœcum, in all severe cases of acute dysentery; and also daily ascertaining the state of every part of the abdomen by a most careful examination. I feel assured that the information thus obtained, has been the means of saving many lives, since the occurrence of this dissection.

CASE XXIII.—J. Balmain, *Æt.* 17, of light complexion, and slight make: only three weeks arrived from England, and had usually resided on board ship; was sent to hospital on the evening of the 21st. August, 1830; having been ill four days with dysentery, which had been treated with calomel, laudanum, and castor oil, while on board ship; but without benefit. He said he was at stool 22 times in the day; and 18 times in the last night. On admission he was suffering from pyrexia, his pulse was 110; the belly hard, flat, and inelastic; the region of the cœcum tumid, hard, and painful on pressure; he had frequent scanty evacuations of a bloody water, passed with great agony; but his urine was free, and there was no distress referred to the region of the bladder. From the latter symptoms, it was evident that the lower portion of the great intestine was the least affected. He was bled from the arm as freely, and repeatedly, as his strength would admit; leeches were applied over the cœcum, and a strict antiphlogistic regimen was observed in every respect; while the usual medicines for dysentery were given. By these means the pyrexia was reduced, and pain diminished; but he remained in a state of great anxiety, and the pulse gradually rose to 142: he had frequent calls to stool, and the evacuations assumed the appearance of a black watery fluid, with the odor of putrid blood.

On the 25th of August, the tension and fulness at the region of the cœcum, and over the right side of

the lower belly, were greatly increased ; the stools became more scanty, in fact, they were nearly suppressed, and the evacuations had a reddish tinge ; the patient was weak and irritable, and apparently sinking. The following medicine was ordered :

R. Infus. Gentian. Comp.

—— Sennæ Comp. āā ʒ iv.

Magnesiae Sulph. ʒ i.

Tinct. Sennæ 3 iss.

Quininæ Sulphatis gr. iv. misce.

To take 2 oz. every 2 hours for three doses. Some wine with water was allowed ; but the first trial of it produced febrile excitement, and he was so sensible of the unfavorable effects, that he was unwilling to take more.

August 26th.—There is a putrid odor from the body ; he has been 17 times at stool in the last night, but the evacuations are extremely scanty, and not improved in quality. Through this day (26th) he had no stool, and seemed easier ; the pulse fell to 116, and the belly was less tumid.

The above mixture was repeated, twice in the course of the day ; but no wine was given, and he had two common enemata, after each of which, he had a moderate fluid evacuation ; and his belly became softer. On the following night he slept at times, and had seven calls to stool, voiding altogether not more than a pint of brown fluid, with a slight tinge of blood, and less foetid ; the exhalation from his body had become less offensive ; and his belly was softer. He wished to eat bread and milk. At 8 A. M., a tube of small intestine, five inches long,

and some fragments of equal length, were passed per anum, with some pus, and bloody ichor; the tube appeared to consist of the whole of the coats of the small intestine, inverted*; and on its surface, some sloughing ulcers were very distinct.

The mixture was repeated; and he was ordered one dose of Ipecacuanha and Extract of Gentian Pills, at bed-time.

Aug. 29th.—He is much better, has had three fluid, light-brown stools; the belly is soft and flat; a slight fulness in the region of the cœcum remains; his tongue is moist, and clean at the edges, its centre and base are furred. He has passed some more small portions of intestine.

The remaining hardness of the cœcum gradually subsided, and he was able to go on board ship on the 16th of September, still very weak and emaciated; but having a good appetite, which it was difficult to restrain.

CASE XXIV.—William Brown, *Æt.* 23, a stout man, of light complexion and florid face; arrived from England five weeks ago, and has been living on board ship; he landed on the 9th of October, 1830, having been very ill with dysentery for three weeks.

* The preparation of the separated portion of intestine is preserved. Mr. John Elton Hope of the Bengal Medical service, observed the progress of this case with great interest.

Mr. Howship mentions a preparation in Sir C. Bell's Museum, —a portion of small intestine that had sloughed off, in consequence of intus-susception; and in that instance, the separated portion of intestine was partly inverted; the patient recovered.

He sometimes had 48 stools in 24 hours : has now above 20 stools in the day and night ; the evacuations are merely a bloody water ; he suffers from nausea and vomiting ; the pulse is moderate and soft ; the tongue white, moist, and little loaded ; his belly is flat and soft, but there is some morbid sensibility on pressure. He has followed no regular medical treatment. Although at so late a period of the disease, active antiphlogistic measures were deemed requisite ; he was bled from the arm, leeches were repeatedly applied to the belly, and afterwards a blister. He took calomel in 9 i. doses, followed by purgatives for the first three days after landing ; and on the 4th day, 12 grains of calomel, by which his mouth was affected ; still his stools were a black water with the odor of putrid blood. The calomel was omitted, and he seemed better for a few days ; feverish symptoms then came on, with pain at the cœcum, followed by enlargement and hardness at that part ; and he complained of pain at the edge of the right false ribs, and at the epigastrium. Sometimes there was a total suppression of stools, and active purgatives were always requisite to procure evacuations. At the urgent request of a practitioner, who supposed the whole of the ailments to depend on liver disease, and who had much confidence in calomel, for the cure of such cases, this patient took 10 grains of calomel with half a grain of opium three times in the course of the day, and a 4th dose at bed-time, with four grains of extract of hyoscyamus. The same treatment

was repeated next day, but there was an evident aggravation of the disease. The patient died on the following day. On dissection, the cœcum was found extensively adherent to the adjacent parts, its coats so nearly ulcerated through, that on pulling aside the parietes of the abdomen, the intestine was torn open ; many long sloughs were found in the cœcum, apparently the remains of an intus-susception of a part of the ilium, whereby the tumor at the cœcum and the suppression of stools had been caused. There were numerous and large ulcers in the cœcum, and in the transverse portion of the colon. The coats of the intestine were thickened ; in many places there were circumscribed indurations, and on these there were deep ulcers, the edges of which were undermined, and contained sinuses leading to ulcerated cavities between the coats of the intestine.

Since these cases occurred, I have attended a patient in whom very great enlargement and induration at the right iliac region, arose from interstitial deposit between the coats of the cœcum, and into the cellular structure, which unites the back part of that intestine to the iliac fossa ; and a large collection of pus formed exterior to the intestine. At the same time, an intus-susception of the lower portion of the small intestine had taken place into the cœcum, and there was an extensive abscess of the liver. The patient, a robust and plethoric man, was an inveterate drunkard. He was admitted into the General Hospital on the 24th December, 1831, and died on the

5th January, 1832. Notwithstanding the complication of disease in this case, the suppression of stools which took place, combined with other symptoms, indicated so distinctly that intus-susception had taken place, that its occurrence was confidently announced before death; and on dissection, the fact was ascertained to have existed as anticipated.

However difficult it may sometimes be, to distinguish accurately which of these morbid conditions of the cœcum is in progress; it is advantageous to know that they do often actually exist; that moderate attention of the practitioner is sufficient to detect them, as well as to ascertain all that is essential towards the correct treatment of these cases; and, that their dangerous tendency depends on unsubdued inflammation, and extensive ulcerous disease of the cœcum.



CONTRACTION AND INDURATION OF THE SIGMOID FLEXURE OF THE COLON.

The organic changes above-named, which take place at the sigmoid flexure of the colon, in the course of dysentery, are sometimes found to exist at an early stage of the disease; but it more frequently happens that this portion of the intestinal canal becomes the seat of the predominant local affection, at later periods. The morbid condition to which I now particularly allude, consists in a contraction of

the size or diameter of the intestine, at the situation above described ; for the space of, from five to eight inches, or even to a greater extent. The coats of the intestine are much thickened, at the same time that its dimensions are contracted, so as to resemble a chord, which can be distinctly felt at the left iliac region ; and pressure at the part usually causes some pain. The affection now described, is not usually attended with either deep or numerous ulcers at the part. There are generally some small superficial ulcerations, and occasionally large cicatrices may be observed in the vicinity, but not apparently of recent formation. A circumscribed affection at this place, is sometimes attended with pyrexia; and much inflammation and induration at the sigmoid flexure of the colon occasionally cause pain in the left testicle : and induration of the cellular structure in the iliac fossa, above the psoas and iliacus muscle, has been observed to a considerable extent. These cases must always have a protracted convalescence. The state of the alvine evacuations varies according to the degree of contraction, and of irritation, or local inflammation of the mucous membrane at the part affected. When much acute inflammation exists at the contracted portion of the intestine, even for a limited extent ; the evacuations are merely a bloody mucus, in very small quantity. If the mucous membrane be at the time extensively affected, to a great degree at other parts of the intestines, the stools will be disordered in a corresponding ratio. But if on the contrary the

local affection be confined to a small space at the sigmoid flexure of the colon, the patient will have scanty figured stools of small size ; and on the same day, he will experience a griping, and void small, fluid, slimy stools, tinged with some blood. Those patients who suffer from a protracted affection of this sort, usually become emaciated, their bellies are flat, and sometimes retracted, and the abdominal muscles tense. This modification of local disease, at the sigmoid flexure of the colon, occurs very frequently in Natives, as well as in Europeans; it has appeared in some cases of the former class of patients, to be brought on by the administration of hot spices ; and in Europeans from turpentine injections, used at a period of the malady when the local affection was marked by inflammation, and in a state of irritability. I believe that contraction of the cavity of the intestine at the left iliac region, with thickening of its coats, seldom exists long without there being an enlargement of the capacity of the cœcum and contiguous portion of the ascending colon.

I have not used the term "*stricture at the sigmoid flexure of the colon*," because the affection now under consideration, occurs frequently, and if properly treated, it is almost always capable of being cured ; unless the nature of the disease be overlooked for a long period, until the affection becomes established in a chronic form, and the constitution ruined, by the consequences of the disease, and of the various plans of treatment to which the patient is usually subject-

ed. The stricture of the colon, strictly so called, on the contrary is of rare occurrence;—it is more obstinate in its character, and in general admits not of cure, sometimes it is hardly susceptible of palliation.

My observations have not yet enabled me to assign any reason why the contraction takes place so frequently at the sigmoid flexure; and is usually not most remarkable in those cases in which that portion of the intestine is affected by deep and large ulcers.

The treatment requisite for the cure of the local affection above noticed, consists in the repeated application of leeches to the iliac region; once a day is usually sufficient, and the number (from 6 to 12) to be applied, should be regulated by reference to the strength, and the state of constitution of the patient, and the degree of morbid sensibility on pressure over the part: as well as by the evidence of irritation of the mucous membrane of the intestine, evinced by the appearance of blood in the stools. A drachm of Sulphur, with as much powdered gum Arabic, should be mixed with two ounces of mint water, and drank every morning at 6 o'clock, and two grains of powdered Ipecacuanha, with as much Extract of Gentian, should be taken in a pill at 12, 3, and 6 o'clock P. M., daily. And after all appearances of inflammation have been removed, by leeches and the treatment above prescribed; a blister should be kept open over the part affected for ten days, or a repetition of small blisters should be ordered to the iliac regions, every fourth or fifth day, as long as any

induration of the intestine remains. The sulphur and pills being repeated daily, as directed. Sometimes a torpid state of the bowels takes place, requiring a more active purgative; and then, blue pill and compound extract of colocynth, each six grains, should be given at bed-time, twice a week. The time requisite for the cure of these cases, provided the dysenteric affection of other portions of the intestinal canal have subsided; varies, from six weeks, to three months, according to the extent of the disease, and the degree of the induration. There is hardly any stage or condition of dysentery, in which a full allowance of food is more injurious than in that just described. Tepid baths should be used frequently, and a mild diet in very small quantity is absolutely requisite.

CASE XXV.—Serjt. Kornelly, a muscular man of middle age, 12 years in a tropical climate, and usually healthy; was sent to the General Hospital on the 29th of May, 1832, suffering from dysentery of one week's duration; for which he had been treated with calomel until salivation was produced; but as he was not in any respect better, he was sent to the hospital. He was free from pyrexia, the pulse from 60 to 64, the evacuations consisted chiefly of blood mixed with a little yellow fluid fæces. Sometimes the stools were a brown water with some mucus; occasionally he had a stool with the appearance of solid fæces, and generally some blood. The precise situation of the predominant local affection was not at first ascertained, and he was treated with the usual purgative of jalap

in the morning, and pills of extract of gentian, blue pill and ipecacuanha, four times a day; and an anodyne enema at bed-time. He was ordered food in very small quantity. The disease was not materially benefited by the above treatment, and the patient's constitution was becoming daily more impaired: his pulse rose to 92; he became emaciated, and weak.

Subsequently, the induration at the left iliac region was noticed, and the treatment was directed with a view of removing the local affection, and sulphur was used as a purgative, from which in this case the greatest benefit was derived; for it soon procured free and feculent stools, and the disease gradually subsided. But he was not able to leave Hospital before the 30th of July. This patient was seen six months afterwards: he had no return of the local complaint, and his health had remained unimpaired.

CASE XXVI.—Snoswell, aged 16, a sailor of the ship *Roslyn Castle*. Was admitted into the General Hospital on the 2nd of August, 1833. He had been ill 14 days with acute dysentery, his stools amounted to 40 in the 24 hours, and consisted of blood and mucus. This patient was put on the usual treatment for acute dysentery, already described. On the 5th of August, he had only 12 stools in the 24 hours; on the 7th, five stools, and on the 8th two natural loose stools. He was now distressed with many irritable boils on his back and lower extremities.

Up to the time of his death, he had two natural loose stools daily; and he made no complaint, except

that which arose from the distressing irritation of numerous inflamed boils.

This lad was observed to be very restless on the night of the 12th of August ; he was thirsty, and called often for drink for several hours ; but as he had previously complained and moaned much, in consequence of the distress arising from the boils, the patients near him supplied him with barley-water, and took no farther particular notice of him. He died suddenly soon after midnight.

On dissection. The stomach was found distended with the water he had drank at an early part of the night. The liver was enlarged but not diseased, the gall-bladder was small and shrunk ; many of the mesenteric glands were enlarged. The omentum was adherent to the cœcum, and when pulled away, an opening was made into the cœcum, at the situation of an ulcer at the interior of that intestine. The sigmoid flexure of the colon was slightly thickened, contracted, and vascular ; its lining membrane was marked by the cicatrices of recently-healed ulcers.

I at first suspected that an ulcer had perforated some part of the intestinal canal, and allowed the fæces to pass into the cavity of the peritoneum, thereby causing sudden death ; but the most careful scrutiny of the abdominal cavity, and of its viscera, proved that there was no penetrating ulcer : in fact the only remaining ulcer, was that of the cœcum, at the part opposite to which the omentum was adherent externally. It also appears to me, that when death

arises from the escape of the fæces into the cavity of the peritoneum, it is usually preceded by symptoms of peritonitis, for at least 18 hours. The case is interesting, as a proof of the rapidity with which ulcers of the intestinal canal sometimes heal. This lad had been allowed a diet of bread, milk, and sago, for several days before his death, and he would gladly have eaten meat if that had been permitted.

CASE XXVII.—John McDonald, aged 30 ; a small and rather emaciated sailor of the Ship *Malcolm*. Was sent to the General Hospital on the evening of the 5th February, 1834, having been ill 21 days with acute dysentery, for which leeches and cupping had been employed on board ship, but the nature of the medicines used, was not known to the patient. He now has thirteen stools in 24 hours, mixed with blood, and is in a state of fever, the belly is flat and tense, he has taken a considerable quantity of various kinds of food in the last six hours.

He was bled to lb. i. an emetic of 10 grains of Ipecacuanha was given in tepid water, and after its operation he had an Anodyne Enema : and 2 Pills were given, containing blue pill, Extract of Gentian, and Ipecacuanha, each 4 grains.

Slight morbid heat of skin remained next day : leeches were applied to the belly ; and the treatment directed in the foregoing pages was ordered. On the 10th of February, he was much better, and had only 5 stools in the day and none at night. On the 18th the stools became more frequent, and on the 20th, he

complained of pain in the testicles, which was increased by pressure over the iliac regions ; therefore leeches were repeatedly applied to the ilia. A palpable induration and enlargement of the sigmoid flexure of the colon was detected on the 6th of March, which gradually increased, and the left iliac region was painful if pressed : the belly became retracted and hollow, but the muscles were less tense, so that the extent of the indurated portion of the colon was very distinctly ascertained. This local affection was attended by griping and frequent scanty stools, with slime and blood. The disease was only subdued by the most rigid perseverance in the application of leeches daily to the part, and poultices after the leeches were removed ; and latterly by a blister kept open for ten days. Sulphur was given daily as an aperient : ipecacuanha pills were ordered in the course of the day, and an anodyne enema at night. There was great difficulty in restraining this man from taking too much food, and therefore his recovery was retarded. Nevertheless he was restored to good health, and left Hospital on the 20th of June, 1834, as stout and strong as he had ever been.

I have been disposed to enter into minute details concerning those circumscribed affections of the intestinal canal, which occur in the course of the dysentery of this country ; because most of them, when existing to a severe degree, are exceedingly dangerous, if overlooked ; and some of them, particularly

those seated at the cœcum, are liable to cause delusive indications of liver disease, leading to improper treatment. In protracted cases of dysentery, where the ordinary means of cure succeed but imperfectly ; the cause of tardy and imperfect recovery very often consists in some morbid affection of circumscribed extent, at the cœcum, or at the sigmoid flexure of the colon. I know that these protracted cases are often subjected to long and useless courses of mercury, and afterwards they are not unfrequently sent to sea* for recovery, during the insidious progress of this kind of local disease ; and that they sometimes die at sea, because sufficient means of proper medical treatment are not always available on board ship.

MUTUAL INFLUENCE OF DYSENTERY AND HEPATITIS.

In pursuing an inquiry, concerning the reciprocal influence of dysentery and hepatic disease ; we have

* There is much interest connected with inquiries concerning the best means of cure, in many protracted cases of dysentery in Bengal ; a voyage to sea often restores them when nothing else will. A similar remark has been made with respect to some descriptions of protracted dysentery in the West Indies, which commence recovering from the moment they sail. Desgenettes gives a very remarkable instance of the same sort in Egypt, where 400 cases of chronic dysentery were sent on board ship from Alexandria ; 19 of these patients died within a few days after embarkation, the rest all recovered. Have we any means of ascertaining, in what stage of dysentery, patients are unlikely to receive benefit from going to sea, so that we may avoid the cruelty of embarking persons in a hopeless state, who are susceptible of no change except aggravated misery, by the removal ?

abundant opportunities of seeing that the advanced stages of abscess of the liver, are almost always attended with dysentery ; and ulcerations of the mucous membrane of the great intestines are found on the dissection of these subjects. There appear also sufficient reasons for concluding that extensive acute disease of the great intestines, occasionally excites hepatic irritation, with tendency to suppuration ; and sometimes deep-seated or central abscess of the liver takes place, in spite of the most decisive and accurate treatment. The circumstances attending the origin and progress of the hepatic disease, will in these cases, confirm the belief that the liver affection has been excited by the disorder of the intestines, the irritation of which so often extends to the mesocolon.

In my experience, this consecutive description of liver affection has happened most frequently among patients of a light complexion, with delicate and irritable constitution ; though I have occasionally met with the same morbid affection in persons of robust make and dark complexion. In those cases to which I allude, the symptoms of liver disease are not evident until the dysentery has existed many days ; and they frequently only commence when the bowel-complaint is decidedly on the decline, when the quantity of the alvine evacuations is considerably decreased, and when the patient has ceased to void blood, except in small quantity. In fact, there is an apparent convalescence for a day or two ; and then we find the patient complaining of a hot forehead, dryness of the skin, and a

hectic flush in the cheek ; his pulse is accelerated, and there is usually some fretfulness and irritability of mind. At a very early stage of these affections, when the hepatic disease is seated in the right lobe, the right *rectus abdominis* muscle is more tense than the left, and it resists pressure by an involuntary resiliency*. In a few instances, the patient has pain at the point of the right shoulder. These symptoms may exist a day or two, before palpable enlargement of the liver is detected ; and before pressure over the right hypochondrium causes pain. At the same time, the stools become frequent and scanty ; and in those cases, where there is distinct hectic appearance, or much febrile excitement, the color of the evacuations is of a deep orange, inclining to red : but in other cases nearly similar, only having the hectic flush and febrile excitement in a more obscure degree, the stools are very scanty, black, viscid, and adhesive.

This dangerous affection of the liver, seems to arise from the abrupt cessation of copious secretions from the mucous membrane of the intestines, while some degree of the inflammatory condition is unsubdued ; the decrease of the discharge from the bowels giving rise to relative plethora of the mesenteric vessels, and consequent hepatic congestion and irritation. This

* This morbid irritability of the rectus abdominis muscle, in consequence of deep-seated inflammatory affection ; is analogous to the morbid irritability of the muscles of the thigh, attendant on the early stage of inflammation of the hip-joint.

consecutive hepatic affection is dangerous, because it takes place when the practitioner is generally relaxing in the diligence of his examinations, and remitting his remedies; as well as allowing more food, under the impression that his patient is cured.

In the treatment of the hepatic affection above described; although the patient may have been previously subjected to the most active antiphlogistic measures, still more depletion will be requisite in the greater number of cases; the degree and repetition of which must depend much on the nature of the symptoms, and the fidelity with which the former depletions have been pursued. If the patient's strength will bear V. S., it is by far the most decisive and effectual measure we can adopt; and if employed while the patient is in the recumbent posture, a small blood-letting will generally be borne. The patient must submit to use no food, except tea and bread in very small quantities, for some days: leeches must be applied to the right hypochondrium, and repeated once a day until the symptoms subside, and all tension or fulness indicating liver-disease is reduced. At the same time, that this system of blood-letting and leeches is carried on, eight grains of compound extract of colocynth, with four grains of calomel, and two grains of aloes, are to be taken early every morning; and compound powder of jalap 3 ss. is to be administered three hours after the pills: omitting the calomel as soon as a moderate mercurial affection of the gums is produced. As soon as the flush-

ed cheek, dryness of skin, and morbid sensibility on pressing over the liver, subside ; a blister is to be applied to the right hypochondrium, and the discharge kept up for ten days, giving the pills above prescribed daily at bed-time, if any fulness in the region of the liver should remain, and every morning a dose of one drachm of sulphur. During this treatment, it is important to keep the patient perfectly tranquil, in the recumbent posture ; and a tepid foot-bath should be used twice a day, as long as the skin continues dry. The foot-bath may be placed near the bed or couch, so as to be used while the patient is lying down*.



SLOUGHING OF THE MUCOUS MEMBRANE OF THE INTESTINE.

The greater number of those patients die, who void much mucous membrane of the intestine in a sloughing state ; and in whom the exhalations from the body as well as the stools have that peculiar smell, described as the odor of putrid blood. On dissection of these subjects ; when the cavity of the gut was opened, I have found a large extent of the great intestine with its mucous membrane in a sloughing state, and hanging in ragged masses and shreds.

* An example of consecutive hepatitis is remarkable in Dobell's case. See Reports of 10th to 15th June. CASE XXXI.

So few of these cases recover, that I am obliged either to consider this stage of disease almost inevitably fatal ; or that our ordinary modes of treatment are not the best adapted to its cure. Quinine is so useful in sloughing sores of the surface of the body, in debilitated constitutions ; that I have been induced to try it in some of these desperate cases, where I had reason to believe, there was sloughing of the mucous membrane to a considerable extent : I have ordered at the same time a little opium, just in the way we would do for a sloughing sore on any other part. In cases where acute inflammation had been subdued, or was not progressive, and before profuse cold sweats have taken place ; I have seen such remarkable benefit from this treatment, that I am unwilling to omit mention of it, as affording the means of occasionally saving a man's life, under circumstances, in which I know of no other plan that ever does any good.

CASE XXVIII.—John Newby, *Æt.* 25 ; a tall and stout man, recently arrived from Europe ; came to Hospital on the 16th of November, 1830. He was suffering from very acute dysentery, attended with pyrexia ; for which the usual treatment was pursued. The evacuations soon became of a black watery appearance. On the 21st November, he had 20 stools in the day, and as many at night, copious, black and watery, mixed with much fluid of a puriform appearance, and some flocculent sloughy masses. The exhalation from his body resembled the odor of putrid,

blood ; his belly was soft, flat, and inelastic ; pulse 108, tongue rather dry, and of a mealy appearance, but almost clean : there was great anxiety, and he complained much of thirst.

The former treatment was now omitted, and he was ordered,

Pil. Hydrarg. gr. vi.—Opii gr. i. to be taken at 7 A. M.

R. Infus. Sennæ Com.—Infus. Gentian. Comp. āā lb. ss.

Magnesiae Sulphatis ʒ ii. Quininæ Sulphatis gr. xvi.

Acid. Sulphuric. Aromat. gtt. 50—misce.

Give two oz. of this mixture at eleven o'clock.

Vesper.—He appears better, and has had eight stools.

R. Pulv. Ipecac.—Extract. Gentianæ—Pil. Hydrarg. āā ʒ ss.—misce et divide in Pil. v. One pill every two hours, during the night.

Anodyne Enema, of Laudanum ʒ i. in two oz. of cold water, at bed-time.

November 22nd.—He had 14 stools in the night, a copious dark-brown, fluid feculence, without slime or blood : he feels better ; the tongue is moist and cool, pulse low and weak ; there is no pyrexia, putrid odor decreased ; the morning pill, and the mixture at eleven o'clock, repeated as on the 21st.

Vesper.—He has had only five stools during this day ; a brown, fluid feculence, with some white mucus ; the putrid exhalation from his body has ceased, and he feels better.

Pulv. Ipecac.—Extract. Gentian.—Pil. Hydrarg. āā gr. v. made into three pills, and taken at 8 P. M.

Anodyne Enema repeated.

He slept well all night after the enema, and the same treatment was repeated on the 23rd. On the 24th, he took no medicine, and had four dark fluid stools. The anodyne enema was repeated at bed-time.

Nov. 25th.—He had six free stools in the night, and is in all respects much better. Mild aperients, and a very careful attention to diet, were requisite for a long time. He recovered very slowly, and had for many days after this, a smooth glazed tongue, of morbid red color, but perfectly clean; like a piece of crimson satin moistened in water and stretched. He was discharged well on the 12th January, 1831.

The improvement which took place in this case, after taking the mixture containing quinine, when portions of sloughing membrane were separating; as well as in Balmain's case, page 151, in which a portion of the entire tube of the small intestine was separated and voided per anum; would lead me to hope that an attentive and discriminating practitioner, may be able sometimes to save life, in similar cases, by a mode of treatment not entering into the ordinary plans of curing dysentery.



DYSENTERY COMPLICATED WITH REMITTENT FEVER.

At the commencement of this chapter, the occurrence of paroxysmal fevers, in combination with dysentery, has been noticed. When the fever under which

dysenteric patients may be labouring, takes on the form of an Intermittent, the nature of that affection is sure of meeting early attention, in consequence of the marked character of the paroxysm, preceded by rigor: but the early stage of the Remittent, is often so indistinctly marked, that the gradual increase of important symptoms may take place in an insidious manner, to a dangerous extent, before it attracts sufficient attention to call for an appropriate treatment. It therefore becomes necessary at all times, but more especially at those seasons, when remittent fevers prevail in this country, not only to examine the patient carefully at each visit, and to order the alvine evacuations to be kept for inspection; but to question the patient and attendants, as to any febrile exacerbation that may have occurred in the intervals of our visits; directing their attention to the observation of any increase of heat, anxiety, or perspiration, which may have occurred, and at what hours such changes have happened: and in case of any doubt, the patient must be visited at various hours, and the nature of the case watched. This attention is necessary, for it will sometimes happen, that a patient suffers from a febrile exacerbation daily, which is overlooked by the patient himself, and his attendants, while they are most watchful of the dysenteric symptoms; and the practitioner may find his patient cool and perspiring at the hours of his usual visits; notwithstanding which, a regular and rapid change for the worse goes on, in consequence of a daily exacer-

bation, attended for the time with intense cerebral affection.

As a description of the peculiar characters, and treatment requisite in cases of remittent fever, will form a part of the second volume of this work, I will at present only remark, that, when Dysentery is complicated with Remittent Fever, the cerebral symptoms usually become, in the course of the third or fourth exacerbation, exceedingly intense; the eyes are red, the face is hot, the pulse rapid, confusion of ideas and restlessness are extreme, for about two hours, and sometimes delirium takes place. When these symptoms remit, the perspiration, though profuse in some cases, is seldom so cold as in the majority of remittents, in Bengal, when they are uncombined with acute dysentery. The exacerbation happens generally soon after mid-day, but it also comes on, not unfrequently, just before midnight; and sometimes we find that a paroxysm occurs twice in the 24 hours, at those periods. The intensity of the cerebral symptoms, if neglected, will go on increasing with each return of the exacerbation, and it has appeared to me, that in many of these cases the patients have been destroyed by the intensity of the cerebral symptoms, rather than by the ordinary course of dysentery*.

* It was probably the frequent occurrence and fatal termination of these febrile paroxysms, which made Balfour designate the dysentery of India, "A putrid, intestinal, remitting fever."—*Balfour on Sol-lunar Influence*, p. 17.

Dr. Cheyne has particularly remarked the importance and de-

In the treatment of dysentery, complicated with remittent fever, we must pay the strictest attention to the inflammatory character of the local dysenteric affection; and employ the lancet and leeches in its early stage, with all the freedom which the nature and degree of the local affection of the intestinal canal, or the cerebral symptoms attendant on the exacerbation of the fever may demand. It will be advisable to follow the more active measures of depletion, at the time of the exacerbation of the febrile paroxysm, rather than during its decline, as it is not always safe to employ the lancet so freely as the nature of the local inflammation may require, at those hours when the acme of the paroxysm has passed, and there is some tendency to collapse.

The mild aperients, with ipecacuanha, as already described, are useful in these cases; but it is of great importance to subdue the cerebral symptoms, and to check the return of the exacerbation as early as possible: for which purpose, besides the due abstraction of blood at proper periods, it is necessary to administer the quinine in doses of four grains, twice or three times, at each period of the remission. The cerebral symptoms also require the use of two or three large doses of calomel, of not less than a scruple,

structive character of the fever which sometimes attends epidemic dysentery in Europe, and he ascribes the fatal termination of such cases, to the nature and degree of the pyrexia, rather than to the mortal character of the dysenteric affection.—See *Dublin Hospital Reports*. vol. iii. p. 32.

after the quinine has been given; and it is also important in these cases to obtain a truce from the intensity of the intestinal irritation, by combining one or two grains of opium with the calomel at bedtime, and giving at the same hour, an enema of 3 i. of laudanum, in 3 ii. of cold water. Thus directing for the time, our principal remedies to arrest the febrile paroxysm, and to subdue the cerebral affection, which is often in such cases found rapidly to increase to a most dangerous extent. Although the subject of remittent fever will be fully considered in a separate section in this work, to which I refer for more particular details, I even venture some repetition, for the purpose of calling particular attention to the importance of this combination of disease, which is often suddenly fatal, when the character of the fever is overlooked: for unless treated with great care and skill, there are few acute diseases which destroy life so rapidly as Remittent Fever combined with acute Dysentery.



CHRONIC DYSENTERY.

Chronic Dysentery takes place in consequence of extensive injury of the coats of the intestines; and sometimes the damage done by the acute stage of the disease, locally, as well as to the constitution, is such as not to admit of repair: an example of this sort is related in Case IX. page 104, where the transition from the

acute to the chronic state is seen. It also frequently occurs, without much preliminary acute disease, in persons whose constitutions are broken, either by a long residence in India, or by the gradual invasion of different kinds of visceral disorder, both functional and organic. These visceral changes may exist in parts remote from the intestines ; though most commonly they are dependent on the state in which the mesentery, and mesocolon, and parts situated behind the peritoneum, are left by the acute stage of the disease.

In Chronic Dysentery, the patients are generally much debilitated ; they suffer from a frequent watery purging ; and the fæces are mostly of a pale-grey color, mixed with some mucus, and more or less of white matter. A portion of the aliment often passes through the intestinal canal, undigested ; and then the evacuations are of various colors. The stools are sometimes a copious, paste-like, brown mass, in a state of fermentation ; occasionally they are frothy, with a subalbid, or pale-grey sediment, like a mixture of chalk and beer : and in a few very protracted cases, the matters voided are very copious, quite watery, and varying from bright orange to a pale straw color. Blood is rarely present in the stools ; and the patients do not suffer from pyrexia, except in those instances where there is extensive irritation of the mesenteric glands ; and then, occasionally, evening hectic may be observed. The belly is generally flat, inelastic, and somewhat retracted ; though in a few

cases tympanites is a troublesome symptom. The skin is often arid, shrivelled, and desquamating.

In our treatment of the Chronic forms of Dysentery, we must remember the degree of affinity that may still exist, with the previous acute disease; and pay due attention to any visceral disorganization that may have been produced by that stage. Considerable irritation does assuredly often exist in many of these cases, but from the habit of enduring excitement for a long time, the constitutional symptoms produced thereby, become less distinct, although the intestines may be in a state of exquisite morbid irritability; and the actual condition of local disease, which we have to combat, is this general irritability of the digestive organs, with more or less of circumscribed local congestion, and patches of passive inflammation.

The objects most requisite to be accomplished in the treatment of Chronic Dysentery, are the removal of the local morbid affections above described, the improvement of any of the functions that may be in a disordered state, more especially the functions of the skin and of the digestive organs; and the restoration of the patient's strength. For these purposes, our remedies must be directed to procure a regular and uniform secretion from the mucous membrane of the intestines, by the influence of mild purgatives; and by such remedies as have the property of restoring the capillary circulation to a healthy state, and of moderating profuse discharges: for this latter purpose, frequent small

doses of ipecacuanha answer very well, and some mild tonic or chalybeate may at the same time be given once a day.

In the Dysentery which is really Chronic, there is seldom occasion for general blood-letting, as the system is commonly in a state quite the reverse of plethoric, but leeches are frequently of much service; and whenever indurations can be felt, unattended by morbid sensibility on pressure, or by any pyrexia, blisters are generally very important remedies.

It is generally proper to begin the medical treatment of chronic Dysentery, with a moderate dose of compound powder of jalap, or of castor oil, for the purpose of carrying off the refuse of indigested food, or the remains of morbid secretions; after which, the patient should take ipecacuanha, extract of gentian, and blue pill, four grains each, every night; a drachm, or half a drachm of sulphur every morning, mixed with cinnamon water, by means of thick mucilage, or of powdered gum Arabic; and a wine-glassful of the following mixture daily at noon.

*R.** Infus. Ipecacuanhæ ʒ i.

——Gentian. Comp.

Misturæ Camphoræ āā ʒ v.

Tinct. Cardamom. Comp. ʒ ii.—misce.

If there be any degree of morbid heat, with the dryness of the skin; a mild purgative each morning,

* This Infusion is made with ʒ i. of Ipecacuanha root, to ʒ i. of boiling water.

of compound powder of jalap, will be found most effectual ; but if there be a dry and shrivelled skin, with coldness, the daily aperient of sulphur will usually answer best.

The diet proper in Chronic Dysentery, is almost as limited in its quantity as that directed for the acute cases ; for the whole course of the alimentary canal has now become permanently so much disordered, that the use of a large quantity of food, adds to irritation, without augmenting the ratio of nourishment taken up by the system, in a corresponding degree. When the above treatment is commenced, the diet should consist of sago, gruel, or other farinaceous food, four times a day ; in quantity not exceeding six oz. each time ; two ounces of milk may be added to the breakfast and supper, and one ounce of wine to the mid-day meal ; it is advisable not to allow a great variety of food on the same day, at any period during the progress of convalescence.

CASE XXIX.—Vaill, *Æt.* 31. A tall thin man, of dark complexion ; five and a half years in India ; generally healthy for the first three years and a half : since that he has twice had fever, with pain in the left side. Admitted into General Hospital, on the evening of 15th September, 1828. He has been ill seven months, with a constant purging ; at first great quantities of blood and slime were voided, and he used to go to stool five or six times every hour. He says that at the commencement of his disease, he took calomel and opium for six weeks, without much

benefit ; he then went to Dacca, and continued the calomel until salivation took place, since which he has usually had ten or eleven stools in 24 hours, without blood. No medicine was given during the first 12 hours after he came to Hospital, that the stools might be observed.

September 16th.—He has had five very fluid, dark-grey stools in the night, moderate in quantity, and passed without pain or straining ; his tongue is white and moist ; the urine free : he has some pain if the lower belly be pressed.

Pulv. Ipecac. gr. vi.—Extract. Gentian. gr. iv.—Pil. Hydrarg. gr. v. in three pills, at 7 A. M., and repeated at bed-time. Apply a blister to the lower belly.

Sept. 17th.—He has had four, loose, foetid stools, in moderate quantity, during the twenty-four hours.

Repeat the three pills, morning and night.

Sept. 18th.—Two stools yesterday ; only one at night.

Repeat the three pills, morning and night, and give one drachm of Compound Jalap Powder at noon.

Sept. 19th.—He had two stools after the jalap yesterday, and two more at night.

Give one drachm of Compound Powder of Jalap in the morning. Three pills as usual at bed-time.

Sept. 20th.—He has had four natural loose stools in the 24 hours, and feels much better.

Give the Compound Jalap Powder in the morning as before. Pulv. Ipecac. gr. vi.—Extract. Gentian. gr. iv. in two pills, at bed-time. The same treatment was repeated daily.

Sept. 24th.—Four stools in the day, and one at night.

Jalap omitted. Two pills repeated night and morning daily, as prescribed on the 20th.

Sept. 28th.—He has had two stools in 24 hours ; a natural, loose feculence, in moderate quantity ; says he has not been so well since March.

Two pills at bed-time every night.

October 13th.—He has had only one stool every 24 hours ; feels well. No more medicine.

CASE XXX.—Mrs. Costello, *Æt.* 19 ; a delicate woman, much emaciated ; had been ill with purging one month before she came under my care in the General Hospital, on the 25th of September, 1830. During the last six days she has been worse, and has passed much blood. At present there is no pyrexia, the belly is flat, and pressure over the abdomen painful ; she has latterly had above 30 stools a day.

She took a dose of laudanum last night, which suppressed the evacuations of fæces ; but the calls to stool since that have been incessant, and only blood is now voided.

R. Pulv. Jalap. Comp. 3 ss. statim.

R. Pulv. Ipecac.—Extract. Gentian.

Pil. Hydrarg. āā \mathfrak{D} i.—misce et divide in Pil. No. x. One pill to be taken at 12, 2, and 4 o'clock.

Vesper.—She was purged ten times before noon, but not once since she began to take the pills.

To take one pill as above, at 7, 9, and 11, o'clock this night.

Sept. 26th.—She has had only one copious watery stool during the night, of dark-grey color, and very foetid ; no pyrexia ; there is a peculiar dysenteric odor about the bed and person of this patient.

Pulv. Jalap Comp. \mathfrak{D} i.—in Aquæ Cinnamomi $\frac{3}{4}$ ss. at 6 A. M.—One pill as above at 12, 2, and 4 o'clock.

Sept. 27th.—She had been nursing a stout child, aged 11 months, which was ordered to be weaned ; and in consequence the breasts are now painful, and her head is hot. She had four stools since yesterday morning, but voided no blood.

R. Pulv. Jalap. Comp. \mathfrak{D} i.—Pills repeated.

Sept. 28th.—Eight stools in the forenoon yesterday, without blood or slime ; no stool at night.

Jalap omitted.—Pills to be continued daily.

Sept. 30th.—She has had only one stool in the last 24 hours, it is of nearly natural appearance ; the appetite has returned.

Let her take two pills at bed-time.

October 1st.—Three stools ; she has a slight mercurial taste in her mouth. Medicine omitted.

Oct. 2nd.—Five fluid, pale, clay-colored stools.

Let her take 2 pills at bed-time.

Oct. 3rd.—She has had only two stools in 24 hours.

R. Extract. Gentian.

Pulv. Ipecac. āā gr. v.—misce et divide in Pil. ii.

Two pills at bed-time : to be repeated every night.

Oct. 10th.—No stool during the last 24 hours.

Medicine omitted.

This woman was discharged from the Hospital on the 11th October, and continued well. The return

of the purging when the pills were omitted on the 1st and 2nd of October, shews that recovery was owing to the medicine, and not to the cessation of nursing her child, though that circumstance may have contributed to the restoration of her strength.

CASE XXXI.—Henry Dobell, *Æt.* 19, a sailor; left England 13 months ago, and has just now arrived from China. Admitted into the General Hospital, Calcutta, on the 29th May, 1830. A slight made man, of dark complexion, and emaciated; ill six months with dysentery, during which period he has been often salivated, but only experienced temporary and imperfect relief of the disease. He has now a sore mouth, and a frequent purging; rises to stool 18 times in 24 hours. Evacuations to be observed, and no medicine taken.

Alum ʒ i. Tincture of Myrrh ʒ ss. to be mixed with a pint of water, and used as a gargle for the mouth.

May 30th.—He had 15 calls to stool during the night; the evacuations are a dark, reddish-brown, watery fluid, attended with severe griping; the belly is flat, tense, and very painful if pressed: the region of the cœcum is tumid and tense. His pulse is 96 and soft; skin cool; tongue white, moist, and nearly clean; he feels weak.

V. S. ad ʒ xiv.

R. Pulv. Ipecac.—Extract. Gentian. āā ʒ i.—misce et divide in pil. No. x.—Two pills to be taken at 8, 10, 12, 2, and 4 o'clock.

Apply six leeches to the belly at 10 o'clock.

Tepid Bath at noon.

Vesper.—The blood taken in the morning is buffy : he has been to stool every 10 minutes ; the evacuations are a red water, with blood, and films of membrane. Pulse 96, and full ; the leeches are still bleeding freely.

V. S. ad $\frac{3}{4}$ xx.—Calomel. $\frac{3}{4}$ ss.—Pulv. Ipecac. $\frac{3}{4}$ i. made into six pills and given at 6 P. M.

R. Tinct. Opii 3 i.—Aquæ Fontis $\frac{3}{4}$ ii.—misce, to be used as an Anodyne Enema at 8 P. M.

May 31st.—The blood taken last night is buffy and cupped. He slept little, and was on the stool every half-hour since 10 P. M. ; the evacuations consist of a bloody mucus, altogether not three ounces : his belly is flat, retracted and inelastic, but much softer than on admission, and there is less pain on pressure.

R. Calomel.—Pulv. Ipecac. aa $\frac{3}{4}$ i. in pills at 6 A. M.

R. Pulv. Jalap. Comp. 3 i. in Aquæ Menth. Pip. $\frac{3}{4}$ i. at 9 o'clock.—Hot fomentation to the belly.

Vesper.—He has had seven free stools ; the first was mixed with much blood, the four last were a green fluid, and feculent, with little blood. Pulse 96, and soft ; skin cool : tongue clean and moist.

R. Pulv. Ipecac.—Extract. Gentian.—Pil. Hydrarg. aa gr. vi. in 3 pills at 7 P. M.

Half past 10 P. M.—He has had two scanty stools, consisting of about 3 iss. of bloody slime.

Repeat the enema as last night.

June 1st.—He slept tolerably, but had eight calls to stool ; the evacuations are a scanty, bloody slime, in quantity about 6 oz. ; his belly is soft, flat, and

elastic. Pulse 84 and soft; the tongue is clean and moist; and he has no pain.

Pulv. Ipecac.—Extract. Gentian.—Pil. Hydrarg. āā gr. vi. in 3 pills at 6 A. M.

Pulv. Jalap. Comp. 3 ss. to be given in water at 1 o'clock P. M.

Half past 4 P. M.—He has had seven stools; a dark-grey, fluid feculence, with much transparent slime, and a little blood in masses: he feels better; the belly is soft, elastic, and retracted.

R. Pulv. Ipecac.—Extract. Gentian.—Pil. Hydrarg. āā gr. iv. in two Pills at 7 P. M.

Enema of Laudanum 3 i. in 2 oz. of water, at 9 P. M.

June 2nd.—He slept tolerably at short intervals, but had seven calls to stool; the evacuations are dark-brown, and scanty, not tinged with blood, but horribly foetid.

Repeat the Pills at 6 A. M., as yesterday.

Vesper.—He has had six stools during the day, the evacuations may be altogether about 24 ounces of grey and fluid fæces; there is no pyrexia.

Repeat the Pills at 7 P. M., as yesterday.

June 3rd.—Five stools in the night; about a pint of dark-brown, feculent fluid, with a horrid odor: he feels much better.

Extract. Gentian.—Pil. Hydrarg.—Pulv. Ipecac. āā gr. iv. in two Pills at 6 A. M.

Vesper.—Seven stools, of the same description as stated above. Repeat the pills, as in the morning.

June 4th.—Three fluid stools, of light yellow color; his tongue is dry and clean: he has no pain.

Repeat the Pills, morning and evening; and give Compound Powder of Jalap 3 i., in an ounce of Mint water, at noon.

June 5th.—He has had four stools during the 24 hours; the last of which is partly figured: he feels better than for four months past. Treatment repeated daily.

June 7th.—Four stools: his general appearance is improved; the evacuations are feculent. Treatment continued daily.

June 8th.—He has had five stools in the last 24 hours, a copious dark feculence.

Extract. Colocynth. Comp.—Pil. Hydrarg. āā gr. v. daily.

June 10th.—He has had three stools in the last 24 hours; there is some tension of the right rectus abdominis muscle, and he complains of uneasiness on pressure over the liver.

Apply 6 leeches to the region of the liver.

Pulv. Jalap. Comp. 3 i., at 6 A. M.

Vesper.—He has had three stools; his belly is softer; the leeches bled profusely.

Extract. Colocynth. Comp.—Extract. Hyoscyami—Pil. Hydrarg. āā gr. iv. in two pills, at bed-time.

June 11th.—Three stools during the night, there is a slight fulness in the region of the liver.

R. Extract. Colocynth. Comp.—Pil. Hydrarg. āā gr. v. at 6 A. M.—Apply 4 leeches to the region of the liver.

Vesper.—He has been freely purged. The pills are to be repeated as last night.

June 12th.—Three stools during the night ; his belly is soft.

Apply four leeches to the right side.

Extract. Colocynth. Comp.—Pil. Hydrarg. āā gr. v.

June 13th.—Better ; four stools. Repeat the pills.

Vesper.—He has had no stool during the day. Repeat the pills, as on the 10th, at night.

June 14th.—He had four copious dark stools ; and feels well ; the belly is soft.

Extract. Colocynth. Comp.—Pil. Hydrarg. āā gr. v. at 6 A. M.,—and repeat the pills as last night, at bed-time.

June 15th.—Treatment repeated.

Vesper.—Two stools.

R. Calomel.—Extract. Colocynth. Comp. āā gr. viii.

Extract. Hyoscyami gr. iv. in 2 pills at bed-time.

June 16th.—He had four copious lumpy stools during the night.

R. Pulv. Jalap. Comp. 3 ss. at 6 A. M.

Repeat the pills at bed-time.

June 17th.—Two stools in the day, three at night ; the last is of small size, and very hard.

Olei Ricini ʒ i., at 6 A. M.

Repeat the pills at bed-time, as on the 15th.

June 18th.—He had four stools during the night, very copious ; the belly is soft and flat.

Extract. Colocynth. Comp. ʒ ss.

Pil. Hydrarg. gr. v., to be repeated daily.

June 29th.—He improves slowly, and feels very weak ; has 3 stools in the 24 hours, consisting of a copious, loose, dark feculence.

Extract. Colocynth. Comp.—Pil. Hydrarg. aa gr. vi., every night at bed-time.

July 7th.—Discharged well.

In this case, salivation had been fairly and repeatedly tried, but without decided or permanent benefit : and although the man had been ill six months, the existing inflammatory condition required V. S., and was benefited by it, in a remarkable degree. On the 5th of June, the dysenteric affection was in a great measure removed ; and he continued slowly improving till the 10th, when symptoms of irritation of the liver became evident, and they were soon relieved by leeches, purgatives, and mercury. Had the blood-letting in the early part of this man's treatment in Hospital, been less free ; much more active depletion would have been requisite, on the occurrence of the affection of the liver. The diet allowed in this case, was only tea and bread in small quantities, for the first six days ; after that a pint of milk and some sago were taken daily in divided quantities ; and in the last week, when convalescence was well advanced, a chicken, with vegetables, and a pint of beer were allowed.

From the long period which this man had been subject to frequent returns of dysentery, it was supposed that the disease must have caused much induration and thickening of the coats of the intestines, from interstitial deposit, and therefore the continued use of mercury during the greater part of the treatment, was decided on : but the patient's recovery was

not so favorable, as in other chronic cases treated by the sulphur in the mornings, and the Ipecacuanha and Gentian during the day.



DYSENTERY IN NATIVES OF BENGAL.

In the Dysentery of Asiatics, we have to consider a disease which is marked even in its early stage, and in plethoric subjects, by symptoms less distinctly, and less generally inflammatory; though the acute stage is often attended with pyrexia, tenesmus, and evacuations of blood from the intestines. The chronic stages of the disease are more generally prevalent; and those forms of the complaint in many cases come on slowly, marked only by debility, emaciation, and a watery purging; the dejections being in general of a pale-grey color. The sequelæ of this complaint which are most troublesome to natives, are dyspepsia, obstinate and protracted spasmodic colic, mucous stools, aphthæ, and emaciation.

As far as the pathology of dysentery among Asiatics has been ascertained, we find that numerous, deep and extensive ulcers of the great intestines, are less common than among Europeans; and the concurrence of acute disease of the liver, is very seldom observed. Affections of the spleen, anasarca and ascites are often found to exist at the more advanced stages of the disease. A large proportion of natives, affected with acute dysentery, if treated early, recover

as rapidly as the slighter cases among Europeans, and with the exception of active depletion, by using nearly the same remedies ; especially if not at the time much exposed to atmospheric vicissitudes, or fatigue, and not obliged to use bad food. The chronic stages of the disease, on the contrary, especially when much emaciation has taken place, and the belly becomes tympanitic, are most difficult to cure, and require a very careful and discriminating treatment.

My own practice, as well as frequent communication on this subject, with Hakeems or native physicians, leaves me no room to doubt, that with some slight modifications, the same plan of treatment advised in the foregoing pages, is exceedingly successful in the dysentery of natives of India, both Hindoos and Mahommedans. It has never been necessary to use active depletion by blood-letting, among natives, to such extent as among Europeans ; and frequently, the application of leeches can be dispensed with : neither have we occasion to employ purgatives so freely. It is also better not to alter the ordinary relative functions and sensibility of the skin, in people who habitually have the greater part of the body uncovered ; and hence I would not advise the tepid bath as a remedy for dysentery, in natives of Bengal, except on urgent occasions, and when other remedies fail. The habitual temperance of these people, and the peculiarities of their constitution, render many of the more active resources for the severer forms of acute dysentery, unnecessary.

In treating this disease in Asiatics, I advise leeches to be applied to the epigastrium, in the early stage, whenever any pyrexia exists ; their number, and repetition, to vary according to the nature of the disease, and the more or less robust habit of the patient. Ipecacuanha is the most important remedy we can employ in the cure of dysentery among natives ; and it may be prescribed in the same manner as for Europeans, only that smaller doses are in general sufficient, and we must be more reserved in the employment of calomel* and blue pill. We seldom need use more than half the dose of jalap, or castor oil, that is prescribed for Europeans ; and the combination of sulphur and gum-arabic, given in mint water, is a useful aperient in the fluxes of natives of Bengal.

For patients who suffer from the more chronic form of the disease, I have often added oleum menthæ sativæ to the ipecacuanha pills, in the proportion of half a drop with each dose ; at the same time that the blue pill is diminished to half the quantity given to Euro-

* Some valuable and highly interesting observations on the unfavorable condition produced on the constitutions of Natives of India, by the administration of large quantities of mercury, in the treatment of fevers ; and respecting the destructive alvine fluxes which are apt to follow such treatment, at some seasons of the year, will be found at pages 44 and 45, of the 5th volume of Transactions of the Medical and Physical Society of Calcutta, in a letter on the Alvine Fluxes of Natives, by *Mr. J. Hutchinson, Secretary to the Medical Board of Bengal.*

peans. I have also found benefit from adding one grain of asafœtida and as much myrrh, to each dose of ipecacuanha pills; ordering a weak infusion of Chiretta*, with camphor and tincture of cardamums, to be taken at 8 A. M., and 2 P. M.; or, half an ounce of the infusion of ipecacuanha and gentian, with camphor, prescribed at page 179. In obstinate cases, where the above remedies failed for some time, I have seen patients quickly and permanently improved, by the application of a small oblong blister to each iliac region, and keeping it open for a week.

Tenesmus is the most distressing symptom, in the severe dysenteric cases of Asiatics; and the general aversion of the natives of this part of India to injections, precludes us from using the best remedy for that affection, namely the small anodyne enema; therefore, we are obliged sometimes to prescribe opium in other modes. That which has appeared

* Chiretta;—The *Gentiana Chiretta*. A cold infusion is generally used, made in the proportion of 3i. of the stalks to a pint of water, which is strained after being infused for 12 hours. The following is the result of Mr. Richard Battley's analysis of Chiretta. "The Chiretta contains, 1, a free acid; 2, a very bitter extractive and resinous matter, and a large proportion of gum; 3, muriate and sulphate of potash and lime. By comparing the results of the experiments with those previously made on the *Gentiana lutea*, it appears that the extractive matter exists in larger proportion, and contains more gum in the latter than in *G. Chiretta*, and that spirituous extracts of *G. Chiretta* are more aromatic than those of *G. lutea*." Vide vol. iii. p. 34, of Dr. N. Wallich's *Plantæ Asiaticæ Rariores*.

to me most useful is, a night-draught, composed of an ounce of weak infusion of Chiretta, with ten grains of Dover's powder, and one grain of ipecacuanha. Some native patients when in great distress, will use an opiate suppository, or employ the mixture of sugar of lead with cerate, in the same manner, and with great benefit.

The natives of Bengal are so scrupulously attentive to propriety in diet, when they are ill, that we have no difficulty in restraining them to as small a quantity of food as may be consistent with the cure of their diseases. We must remember, that at an early period, and during the transient inflammatory stage of their dysentery, thin sago and rice-water are alone admissible, and in very severe cases with pyrexia, the spare diet used by natives when they have fever, must be enjoined; for that which would be to Europeans a low diet, is stimulant and injurious to Asiatics, while any degree of acute disease exists. Therefore, milk and all articles made of milk, or rice, are unfit food for them, in the early stages of dysentery.

CASE XXXII.—Shaik Yasseen, a tall and stout Moosulman, about 28 years of age, a prisoner in the Jail, applied for relief from dysentery, on the 20th October, 1828. He had been ill eleven days, going 26 times to stool in 24 hours, and passing much blood and slime: he had severe pain in the lower belly when at stool, but there was not much pyrexia present; though his thirst was urgent.

He was ordered $\frac{3}{4}$ i. of Castor oil in the morning; and
Pulv. Ipecacuanhæ—Extract. Gentian.

Pil. Hydrarg. āā gr. iii. in two pills, at 4 P. M.

October 21st.—He was purged by the oil, which caused much pain, and he still passes blood with the stools; but thinks he is better.

Pulv. Jalap. Comp. 3 ss. at 7 A. M.

Repeat the two pills at 3, and again at 6 P. M.

Oct. 22nd.—He had several copious watery evacuations after the jalap, with little pain; and there is hardly a trace of blood in the stools. He has voided much mucus.

R. Pulv. Jalap. Comp. gr. xv.

Aquæ Cinnamomi $\frac{3}{4}$ i., at 7 A. M.

Pills repeated, as yesterday, at 3 and 6 P. M.

Oct. 23rd.—Says he is nearly well.

One pill at 7 A. M., and repeated at 4 P. M.

Oct. 24th.—Says he is well, and will not take more medicine.

CASE XXXIII.—Joynarain, a stout and rather fat Hindoo, aged about 37, also a prisoner in the Jail; was attacked with dysentery, in the latter end of October, 1827; and after suffering ten days, applied for medicines on the 6th of November. He had then slight fever, and thirst; his pulse was not much accelerated. He went to stool 15 times in the day and night; voiding much blood and slime, and suffering great pain in the transverse arch of the colon: belly tumid, soft, and elastic.

R. Pulv. Jalap. Comp. 3 ss. at 7 A. M.

R. Pulv. Ipecac.—Extract. Gentian.—Pil. Hydrarg. āā gr. iii. misce et divide in pil. ii.—to be taken at 4 P. M., and repeated at 7.

November 7th.—Purged by the jalap, which caused much griping, but he is very easy since taking the pills: has been six times to stool in the night; and says he voided much blood.

R. Olei Ricini 3 vi. Viñi Opīi gtt. viii.

Aquæ Cinnamomi 3 i. misce,—at 7 A. M.

Repeat the two pills at 4, and again at 7 P. M.

Nov. 8th.—Much better; pyrexia and thirst abated. Still passes some blood and slime.

Treatment repeated, as yesterday.

Nov. 9th.—He is very nearly well.

Ordered to take Pulv. Jalap. Comp. ʒ i. at 7 A. M.

Two pills at 4 P. M.

Nov. 10th.—He had four stools in the night, without blood. He took one pill morning and night; and no more medicine after this date.

CASE XXXIV.—On the 2nd December, 1830, I was called to see a Hindoo girl, 11 years old. She was rather small for that age, and had been suffering above three weeks from dysentery, which had gone on increasing, though treated with care by some of the best native practitioners. I found her in great agony, passing small quantities of blood and slime by stool, every five minutes; the belly was tense, and thirst extreme; her tongue was white, dry, and very little loaded; pulse rapid and small: there was slight morbid heat of surface. I saw her at 10 P. M., and ordered,

Pulv. Ipecacuanhæ—Extract. Gentianæ—Pil. Hydrarg. āā gr. iii. in three pills at midnight; and to be repeated at 4 A. M.

Pulv. Jalap. Comp. 3 ss.

Aquæ Menthæ Sativæ $\bar{3}$ ss. at 8 A. M.

I saw this patient again at 10 A. M., on the 3rd of December. She was then crying aloud with pain, and had been very little better all night, but the stools were more copious, and contained some dark fæces.

The three pills were repeated at 3 and at 6 P. M.

Vesper.—When I again visited this patient at 9 P. M. I was assured she had been crying vehemently, ever since the morning visit; the stools were copious and mostly feculent, but the pain seemed unabated. The pills had produced nausea.

Two pills were repeated every three hours.

A small portion of Goulard's ointment was ordered to be introduced into the rectum every four hours.

Pulv. Jalap. Comp. Ḑ i. early to-morrow morning.

Dec. 4th.—Much easier; stools feculent, and of dark color.

2 pills at 4, and at 8 P. M.

Pulv. Jalap. Comp. Ḑ i. early to-morrow. Ointment repeated.

Dec. 5th.—This patient was visited at noon, and found much better; the tongue was clean and moist; she had very little pain, and voided no blood, but had been eight times to stool since taking the jalap.

Ordered to take two pills at 4 P. M., and to repeat the dose at 8 P. M.

R. Ol. Ricini 3 vi.—Vini Opii gtt. iv.—Aquæ Menth. Pip. 3 ss. misce—to be taken early to-morrow.

Dec. 6th.—She had six stools during the night, and four after the oil ; no pain. One pill was taken at 4, and repeated at 8 P. M.

Dec. 7th.—Much better ; she was desired to take one pill, (such as those which were prescribed on the 2nd December,) morning and night, daily. She was quite well on the 11th December.

I think such severe cases of acute Dysentery, ought to have leeches applied over the region of the cœcum, and near the sigmoid flexure of the colon : but we are obliged sometimes to use only as much of good and correct treatment, as our native patients will permit. This child belonged to a respectable family, and had suffered no sort of privation ; her friends considered her past recovery when I was sent for, and her state was such on the morning of the 3rd December, that I hardly expected to find her alive in the evening.

The native practitioners have an idea that there is a peculiarity in the dysentery arising after parturition, (which is denominated *sutheke*,) they consider it *a cold disease* of very formidable description ; and usually treat it with a spare diet, and small quantities of warm spices and astringents. I have found a pill composed of one grain of ipecacuanha, with as much blue pill, and extract of gentian, every four hours, useful in such cases ; and, that they might not be entirely deprived of their favourite prescription of aromatics, I have ordered one drop of *oleum rutæ*

in each dose of the above pills. The high temperature in which the lying-in-room of native women is kept, for many days after parturition, may occasion some peculiarity in the dysentery which happens to them, of which we are not well able to judge; as European medical men are seldom called to such cases.

The treatment recommended in the foregoing pages, for the Chronic Dysentery of Europeans, has been found remarkably efficacious in the old and protracted chronic cases which occur among natives; and many of them will recover after having been reduced to a very low state, if they have the means of procuring a moderate quantity of wholesome, mild, nutritious food, and if the constitution be not entirely worn out by prolonged suffering and enlargement of the spleen, before they apply for medical aid. Many emaciated subjects, apparently in the very last stage of the disease, may be cured by the method above stated; also allowing some sago, with a desert spoonful of French Brandy, daily: besides which they may be permitted to take a sort of gruel called in the Bengalee language *khoe munda*, made by boiling parched rice in water, until it resembles thin sago. The *khoe*, or parched paddy, is prepared constantly in all the bazars, (without reducing the grain to a charred or brown state,) by placing the unhusked rice on heated sand, until each grain swells and bursts, forming a large irregular white morsel, which is very light, and would not be recog-

nised as a grain of rice by those who had not seen it prepared. This is considered in Bengal a very light description of food, and recommended by the natives in the early stages of convalescence from fever or dysentery ; it is eaten in the dry state, and is used made into gruel.

CASE XXXV.—A young Hindoo woman, of an opulent family, 19 years of age, (the mother of one child, three months old, which she had been unable to nurse,) was affected with a frequent purging ; which commenced five months before her child was born, and had been very distressing ever since : so that for eight months, there had been eight or nine stools daily : whereby she was gradually much weakened. She had been carefully treated by hakeems or native physicians ; but continued gradually to get worse, until I was requested to see her, on the 24th January, 1831. This patient was then emaciated and weak, the evacuations were watery, and of a pale-grey color ; she never had less than eight stools in the 24 hours, and she was often much more purged. There was a total loss of appetite, and she suffered from constant uneasiness at the scrobiculus cordis. I ordered her to take very little food, and that of the lightest description ; and prescribed—

Pulv. Ipecac.—Extract. Gentian.—Pil. Hydrarg. aa gr. i.—to be taken in a pill, every night.

January 29th.—She had only one loose stool yesterday, and another this morning ; the uneasiness at the scrobiculus cordis is decreased, but not removed.

R. Pulv. Jalap. Comp. ʒ ss.—Pulv. Rhei ʒ ss.

Tinct. Sennæ ʒ ss.—Aquæ Cinnamomi ʒ i —misce.

Half of this mixture to be taken on the morning of the 30th of January, and the other half on the morning of the 3rd of February.

The pill to be repeated every night.

February 8th.—This patient's bowels are regular, her appetite is restored, and her appearance already manifestly improved ; she was directed to take one pill every second night, and to continue up to the end of this month, using daily not above one-fourth the customary quantity of food ; she recovered excellent health without any other medicine.

In the chronic stages of dysentery among natives, the patients occasionally suffer from a train of symptoms, which are not usually observed among Europeans ; they become emaciated, and the belly is retracted: they have four or five mucous stools in the 24 hours ; and once or twice a loose, fluid, feculent evacuation, mixed with a little blood ; and they suffer daily several paroxysms of severe pain close to the navel, these pains will sometimes return at nearly the same hour for several days. The patients fall into a dejected state of mind, and the disease is difficult to cure. I have not ascertained the precise nature and seat of the local affection attending this complaint. The treatment from which the most benefit is derived, is to give,—compound extract of colocynth, blue pill, extract of hyoscyamus, each three grains ; ipecacuanha, and asafoetida, each one grain ;

made into two soft pills, which are to be taken at 7 A. M., and repeated at 5 P. M., daily ; with two oz. of very weak infusion of Chiretta : omitting the blue pill if there be any indication of spleen disease. Natives from the upper provinces, who suffer from the above symptoms, seldom recover good health until they return and reside for some months at their own homes ; where, I believe, they seldom take any medicine. A similar disease, named *sool*, afflicts natives who have not had dysentery.

CHAPTER II.

DIARRHŒA.

DIARRHŒA occurs so often in India, in the course of various constitutional disorders ; and also appears so frequently to be symptomatic of numerous local affections, that I am desirous of offering a few remarks on such forms of that disease as may be with some reason ascribed to the influence of this climate ; or to those changes which the human constitution is more particularly liable to suffer within the Tropics.

The plan intended to be followed in the course of this work, renders it unnecessary for me to give any general account of those transient bowel complaints, which occur in consequence of atmospheric vicissitudes, dentition, or unwholesome food, and numerous other causes ; or of the more permanent colliquative diarrhœa attendant on the latter stage of pulmonary consumption in adults ; and the chronic looseness which takes place at advanced periods of mesenteric disease in children : which being common to all countries, claim no especial notice when occurring in India ; except when the complaint attacks persons whose constitutions are suffering from some disordered condition peculiar to this climate.

There are, however, some kinds of diarrhœa, which, either from the nature of the purging, and its ordinary consequences, or from the state of the patient's constitution when it occurs, as well as from the usual course and event of the disease, and from their frequency in this country; appear more especially to require some particular notice in this place. I have not alluded to those forms of Alvine flux, in the course of the foregoing Chapter on *Dysentery*, although the severer cases of Diarrhœa when attended with inflammation of the mucous membrane of the intestines, bear a considerable resemblance* to that disease; and I may add, the incipient stage of many cases which are correctly denominated Dysentery, varies little, in many respects, from the severer cases of acute Diarrhœa. The varieties of the disease to which I now allude, are—

1st. The chronic diarrhœa, which occurs in Europeans who are long resident in this country.

2nd. The dangerous spontaneous purging, which frequently takes place in the latter stage of some chronic diseases of the spleen.

3rd. The *cholérine*, or the diarrhœa which occasionally precedes the cholera; and which, though now well known in almost every part of the world, will always claim particular attention in India.

* “I have ever experienced a difficulty in distinguishing dysentery from diarrhœa.” Vide Medical Sketches of the Expedition to Egypt from India, by J. McGrigor, A. M. now Sir J. McGrigor, Bart.

For the purpose of attempting some degree of precision, in directing attention to the morbid conditions now under consideration, we may admit the following definition of diarrhœa :—The alvine evacuations copious, fluid, and feculent ; the dejections frequent, and attended with little or no tenesmus ; griping not very distressing. However, the close alliance of diarrhœa, with certain modifications of various other diseases, must be acknowledged ; and when in practice, we find a few of the slighter cases of *dysentery*, in which the evacuations are copious and not much altered, the tenesmus and griping transient ;—and when we remember that the *diarrhœa* of children during dentition, sometimes gradually increases in severity, till irritation and protrusion of a large portion of the lining membrane of the rectum takes place, and a most excruciating dysenteric affection brings on convulsions ;—when we farther observe the purging which in some instances commences with the most severe symptoms of gastro-enteritis, and rapidly changes its character, terminating in the collapse of cholera ; and when in other instances, we find the spontaneous diarrhœa which is marked at first by no symptom except looseness, but which nevertheless, is more slowly followed by the coldness and collapse that gradually ushers in the most fatal form of the same disease, even before the patient himself is aware of the impending danger :—we must acknowledge that it is difficult to propose a definition which shall comprise all the

varieties of the disease that actually exist, and which will not also embrace some conditions to which the term *diarrhœa* is not usually applied.

This latitude in the varieties of the disease, must also make us feel, that the most accurate observation and discrimination, and the most careful judgment, are often very requisite for the successful treatment of this disease. A knowledge of these abrupt changes, which a common purging is liable at any time to assume, would imperiously call for the earliest attention to every variety of diarrhœa, and to the necessity of a skilful selection of appropriate remedies.

An outline of the pathology of those species of diarrhœa, which have been mentioned as deserving particular attention in this country, would in the first place refer to the state of the mucous membrane of the intestines; and would also comprise all those local changes of structure, as well as the derangements of the constitution, on which, experience and diligent observation of the course and termination of the disease, and the result of careful necroscopic examinations, convince us that the superabundant or morbid secretions depend.

In cases where death has been caused by some accident, during the course of the more acute forms of the disease, morbid vascularity of the mucous membrane, and occasionally a degree of thickening of the other coats of the small intestines, or of some part of them, are discovered, on post mortem examination. In these cases we sometimes find numer-

ous small ulcerations of the mucous membrane of the ilium or jejunum. In other cases, the glands of Peyer exhibit signs of morbid irritation; they are increased in size, inordinately vascular, and the orifices of the follicles are enlarged.

Even in the post mortem examination of the more chronic cases, which have existed for many months, we have often opportunities of observing a degree of redness and morbid vascularity of the mucous membrane of the intestines. In very protracted cases, in which much emaciation has taken place, it is the lining membrane of a portion of the great intestines which is more frequently in a state of morbid vascularity; the small intestines being usually in those cases, remarkably thin, transparent, and void of vascularity; and then many of the mesenteric glands are found hard, white, and more or less enlarged; and the result of protracted emaciation and general debility are evident in the various textures of the extenuated body.

There is no evident reason why the morbid condition of the constitution attendant on diseased spleen, should be frequently accompanied with diarrhœa, and with numerous small ulcerations of the mucous membrane of the intestinal canal, which we find much of the same sort as those that are sometimes observed, in cases in which the latter stage of Phthisis Pulmonalis are attended with colliquative diarrhœa. The fact is, that ulcerations of the mucous membrane of the intestinal canal, are the common attendants on a

multitude of constitutional affections, and of many local diseases of remote parts of the body ; as well as of the liver and spleen, and other parts contained in the cavity of the abdomen. *Andral* has asserted that in every ten cases of acute disease, not arising from the alimentary canal, there are about eight in which is observed a greater or less derangement in the texture or functions of the alimentary canal ; and in chronic diseases, whatever be their nature, it is very seldom indeed that the same part does not undergo some alteration. *Vide Pathological Anatomy*, vol. ii.

Europeans, who have been many years in Bengal, are occasionally affected with a chronic purging, which comes on slowly, without any previous or distinct acute stage. The evacuations are copious, quite watery, and of a yellow color ; varying in different individuals, from a bright orange, to a pale straw color : the nearer it approaches to the latter shade, indicates the more intractable disease.

Those patients who have been under my care, with this description of disease, have been persons in good circumstances, and in whom the disorder could not be ascribed to want of the ordinary comforts of life, or to carelessness. They were generally of light complexion, active habits, and sober. The belly was soft, flat, and elastic ; the skin was dry and relaxed ; but there was no pyrexia. The appetite was usually reported to be tolerably good, and most sorts of food

seemed digested, except potatoes, cheese, and some kinds of raw vegetables. The patients generally stated that they had been slowly reduced, and exhausted: sometimes a profuse purging of a pale straw-colored fluid, existed for many months, without much evident progressive change in the condition of the disease, or increase of debility.

In very protracted cases of this sort, in which the patients have resided long in India, and have become emaciated; and the skin has assumed the soft, lax, silky feel, which announces at once the loss of all healthy power, and the cessation of action, as far as relates to the healthy functions of the skin: all sorts of remedies have been tried, and frequently with little or no success. The sulphate of copper and opium seem admissible; but when used in this country, they have failed ten times, for once that they have succeeded. These patients do not often recover, without change of climate; for the disease is connected with an impaired state of the constitution.

When I have had occasion to make post-mortem examinations in such cases, the coats of both the small and the large intestines, have been found remarkably thin and transparent; and in some of the subjects there were a few small superficial ulcerations over a considerable extent of the mucous membrane of the lower portion of the ilium; and the same sort of slight ulcerous disease in the cœcum, and at the sigmoid flexure of the colon. The omentum and mesentery were extenuated

and void of fat; and their glands were enlarged. The liver was found of greyish color, occasionally approaching to a drab; its size decreased; its structure soft and pliable, but tough; and when cut, the section was almost bloodless, unless some of the great veins were divided. The hepatic duct of these subjects has been found much enlarged; the gall-bladder soft and flaccid, containing a pale, oily, yellow fluid: the cystic duct not changed. In many cases we neither find disease of the liver nor of any part connected with that organ. Patients suffering from this sort of disease, require a sea voyage, and a prolonged absence from Bengal:—I have known some of these persons return from the Cape, not much improved in health.

In the treatment of diarrhœa, the plan to be followed in different cases, requires to be very much varied, according to the pathology of the existing affection, and the tendency of the prevailing disease of the season. The obvious indications for the treatment of diarrhœa generally, are, to remove any existing inflammation of the mucous membrane of the intestines:—at the same time that we endeavour to moderate or check the inordinate discharges from the bowels, by effecting which, we arrest the progress of debility:—to remove those more remote local affections which may have excited, or may still prolong the disease:—to improve those secretions which may be in a disordered state:—and to restore the patient's strength.

In the description of diarrhœa above alluded to, namely, the chronic affection which occurs in emaciated Europeans who have been long resident in this country; there is very seldom any evidence of even a transient inflammatory condition in any part of the intestinal canal. With respect to medicine, the great difficulty in these cases arises from our not being able easily to restore the functions of the skin, and the power of the digestive organs; while the patient remains in the same climate by which his constitution has been subdued. If we can judge by the colour of the stools, the biliary secretion appears to be less disordered than many other functions. We sometimes derive benefit from demulcents, and a soothing plan of treatment at the commencement; followed by mild tonics. The plan from which the most benefit has been derived, is, to administer some demulcent medicine early in the morning, and to repeat the dose three hours after breakfast, and at the same interval after dinner; taking no food for at least an hour after each dose of the medicine: and by administering at bed-time, an enema, composed of one ounce of thin arrow-root, to which one drachm of fresh lard has been added, and one drachm of laudanum; these are to be mixed together when the arrow-root is tepid, and stirred till the mixture be cold, before it is injected. The benefit of demulcents, must of course depend on our being able to use such as shall reach those parts of

the intestinal canal from which the inordinate, or morbid secretions are poured out, before they are converted by the action of the digestive organs, and admixture with the morbid secretions, into a state widely different from their sensible properties when they are swallowed. The Isob-Gool, or Uspe-Gool, (the seeds of the *Plantago Isufghola*) seems to answer this purpose better than any other remedy with which I am acquainted. The dose for an adult is 3 iiss. mixed with 3 ss. of powdered sugar-candy. The seeds are administered whole, and in their passage through the intestines, they absorb as much fluid as makes them swell, and by the time they reach the central or lower portions of the canal, they give out a bland mucilage, and in general they continue to possess the same mucilaginous property, until they have passed through the intestines. If the frequency of the dejections be restrained by an anodyne enema, and by using only a small quantity of food; the mucilaginous properties of these seeds are most evident in cases where the evacuations from the intestines are fluid. This remedy is much used by the natives of India, in those cases of obstinate diarrhœa, in which they suppose some degree of irritation; or heat and acrimony of the fluids may exist: and it is said that a slight degree of astringency, and some tonic property may be imparted to the seeds of the Isob-gool, by exposing them to a moderate degree of heat, so that they shall be dried and slightly browned. This remedy sometimes cures the protracted diarrhœa

of European children, as well as of native children, after many other remedies have failed.

A small quantity of well-cooked animal food may be taken once a day, with bread, some rice, and a small proportion of spices ; and farinaceous food, with tea, or coffee, night and morning. All these should be restricted in quantity. Some animal jelly is often both grateful and beneficial.

By resorting to the above remedies at first, we give the patient time to derive benefit from the regulated mild diet in small quantity, which has been prescribed : at the same time that the demulcent may aid the subsidence of any circumscribed local irritation by which the disease may be prolonged.

When the foregoing plan has been pursued for ten days, if it have not much moderated the purging, it places the patient in a better condition to benefit by the administration of tonics and astringents. At the time that these remedies are resorted to, I usually advise counter irritation to be maintained on the surface of the body, to a limited extent, for a prolonged period. For this purpose, a blister two inches broad and four inches long, is applied over the region of the cœcum, and kept open by savine cerate for ten days ; after which it is allowed to heal, and another blister of the same size is placed over the situation of the transverse portion of the colon : at the end of ten days this also is allowed to heal, and then a blister is laid over the sigmoid flexure of the colon ; and on its healing a small blister is placed over the centre

of the belly. The navel should be covered with a circular piece of adhesive plaster, during the time this blister is on, for the purpose of protecting that part from a painful ulceration; which if produced, is very liable to affect the urinary bladder: we may let the piece of adhesive plaster applied to the umbilicus be large, so that the blistered space shall form a narrow ring, at some distance round the navel.

If there be symptoms of considerable local irritation or heat, when the soothing and demulcent remedies are used; it will then be advisable to apply leeches, and fomentations or the tepid bath: and after the local inflammatory affection is moderated, we may order kino and blue pill, each five grains, with half a grain of opium night and morning, or three times a day, when the series of blisters is commenced.

After these remedies have been taken for ten days, they should be changed for nitric acid and opium; and for the purpose of avoiding the use of a large quantity of fluid, I usually direct that one drachm of nitric acid be mixed with 22 ounces of water and 3 ii. of laudanum; of which the patient drinks one-third in the course of the 24 hours, in divided doses. If but slight amendment be produced, the above quantity of the nitric-acid mixture is not increased; but if no benefit be derived from one-third, then one-half of the mixture is ordered to be taken in the day, and an anodyne enema is given at night.

CASE XXXVI. Lockier, an aged man, of light complexion, nine years in India, and much emaciated, when he came under my care on the 27th March, 1834. He had then been suffering for two years from chronic diarrhœa, the stools being frequent, very fluid, and of a pale color. The belly was soft, inelastic, and not tumid; his pulse was weak: the extremities were cold, and the skin was remarkably soft, silky, extensible, and almost inelastic, but never perspiring; tongue clean and moist.

Every plan of treatment that could be devised was followed in this case, without benefit; the sulphate of copper and opium were tried fairly and carefully, but with no effect; and he used mercury, till the mouth was moderately affected, but he obtained no advantage from that or any other remedy. He gradually sunk, and died on the 28th April, 1834.

On dissection, ten hours after death, the subject was found exceedingly emaciated. The liver and spleen were healthy. The fat of the omentum, mesentery, and mesocolon was entirely absorbed. Atrophy of the mesenteric glands. The capacity of the small intestines was slightly decreased, their coats were somewhat thickened. The villous coat was of an uniformly red color. The contents of the small intestines consisted of a small quantity of a rhubarb-colored fluid. The large intestines were relatively much more diminished in capacity than the small intestines; their coats were more thickened and indurated, especially towards the sigmoid

flexure of the colon, where the thickening and induration was most remarkable. At that part the mucous membrane was marked by many brownish irregular spots, which were evidently the cicatrices of former ulcers, the coats of the intestine being thinner at several of these spots, so as to render the marks of cicatrices quite unequivocal. The contents of the large intestines, consisted of a dark-brown mucus, and a small quantity of fluid feculence.

CASE XXXVII.—Isaac Lemon, *Æt.* 34, formerly a stout man, but now reduced by a purging of six months' duration, the evacuations copious, fluid, feculent and generally of a healthy color, but occasionally of a frothy appearance. His tongue is nearly clean, and remarkably smooth; the gums swollen and glossy: he is frequently troubled with flatulency, and eructations. This ailment commenced when he was residing at Simla, and his debility is now gradually increasing. The patient's diet was carefully regulated, and he took in succession a great variety of remedies; among which were kino with opium. Emetics, bismuth with hyoscyamus and rhubarb, to which after some time opium was added; he then used the sulphate of copper with opium, which, as well as the solution of the pernitrate of iron, were tried for a long time: all these remedies proved entirely ineffectual.

On the 7th of June, he commenced taking the Nitric Acid, with *vinum opii*: and on the 9th of June, the nitric acid was prescribed, in combination

with Tinct. Opii, under the use of which the looseness soon began to diminish, and his health gradually improved. On the 17th of June, he had two figured stools; the first evacuations of that sort which he had voided for seven months. By the end of the month his purging had ceased, the digestive organs had resumed their healthy functions, and he had already become considerably stouter.

The solution of the Pernitrate of Iron, recommended by Mr. Kerr, of Paisley, may be often employed with benefit, in cases of simple diarrhœa, unattended with considerable organic disease; and in patients who are not much emaciated. The dose of this medicine is from 3 ss. to 3 ii. three times a day: it is taken in half a wine-glassful of water. Mr. Kerr states that the pernitrate of iron, besides an astringent quality, possesses the property of diminishing morbid irritability of the mucous membrane of the intestinal canal. As this medicine undergoes decomposition, and becomes unfit for use in the course of a few days, Mr. Kerr's formula, and instructions for preparing it, are annexed*.

* The solution of the Pernitrate (or Persesquinitrate) of Iron, is directed to be prepared by Mr. Kerr, in the following manner:—

“Take of small pieces of iron wire, an ounce and a half; nitric acid, three ounces by measure; water, twenty-seven ounces; muriatic acid, one drachm.”

“Put the iron into an earthen-ware vessel, and pour on the nitric acid, previously diluted with fifteen ounces of the water. Set the vessel aside till the whole of the acid has united with the iron, so as to form a persesquinitrate; then decant the liquid

The prescription of sulphate of copper and opium, which Dr. Elliotson brought to the notice of the pro-

from the portion of iron which remains undissolved, strain, and filter. Add the muriatic acid, with the remainder of the water, or with as much of that liquid as shall increase the whole solution to thirty ounces.

“The solution is completed in a space of time varying from seven to twelve hours, according to the concentration of the acid and the thickness of the iron. If a less dilute acid be used, the time will be shortened; but in that case the heat evolved is apt to be so great, as to produce other combinations of the iron and nitric acid. I have always been in the habit of using rather thick pieces of iron; and the time required for the completion of the process is then from nine to twelve hours; but a quantity made lately with bell wire, was completed in little more than seven hours. When the process is finished, the liquid has a red colour, so dark, that, viewed by reflected light, it seems almost black. The evolution of gas is then no longer perceptible. The solution then consists entirely of the persesquinitrate of iron; and, if speedily decanted, it may be preserved in that state; but if allowed to stand for a few hours longer on the iron, it will undergo a farther change, gradually becoming converted into pernitrate and protonitrate of iron. The first of these is insoluble, and renders the liquid turbid; and the latter, which remains dissolved, has not the medical properties which render the persesquinitrate valuable. When the solution contains nothing but nitric acid and peroxide of iron, it slowly undergoes decomposition on standing; so that at the end of a few weeks the whole liquid begins to become turbid. The addition of some muriatic acid prevents this decomposition, and the quantity sufficient for this purpose, is too small to affect the medicinal powers of the persesquinitrate. The solution, when rightly prepared, is of a beautiful dark red colour when viewed with transmitted light. Its taste is very astringent and not at all caustic.”

fession, as an useful resource in the treatment of some modifications of diarrhœa, and dysentery, has been extensively tried by me, in the dose of one-fourth of a grain of sulphate of copper combined with half a grain of opium : the sulphate of copper being gradually increased to one or two grains, and the opium to one grain, for each dose ; which was repeated three times a day. As I have already stated, this prescription has very often failed to produce any benefit. In the few cases which derived advantage from this remedy, a favourable change was produced quickly, and for the most part by remarkably small doses of the medicine. The symptoms indicating a state most likely to be favourable to the use of the sulphate of copper and opium, are, the absence of pain or inflammatory symptoms, and the presence of a pale, clean, moist, and swollen tongue ; the stools being copious, fluid, feculent, and of a pale-grey color. The same remedy in a few instances, arrested the purging in emaciated men, whose tongues were moist, clean, and of deep morbid red, or purple color.

The chronic flux, which attends advanced stages of spleen disease, is often very intractable, and the patients require removal to a dry station, or a change of climate. The purging which takes place suddenly, in patients who are suffering from enlargement of the spleen, is occasionally attended with various symptoms which indicate an acute local affection for a limited extent, much pain and tenesmus

existing; though the constitution be in a state of great debility. But in general there are no acute symptoms. The stools are frequent; and consist of a dark-brown water. The principal reason for calling especial attention to these cases, arises from the peculiar nature of the constitutional affection, which marks the existence of splenic cachexia, and in consequence thereof, the urgent necessity which exists, of avoiding mercurial remedies in the treatment of this form of diarrhœa. The combination of diarrhœa with an enlarged spleen, in debilitated constitutions, is one of the most intractable and fatal combinations of chronic disease known in Bengal.

The Rheum Emodi*, of *Wallich*, a species of Hill Rhubarb, which grows in great abundance on that

* The Rheum Emodi is remarkable on account of the loose texture of the dried root, compared with the rhubarb of commerce; in its sensible properties the powder differs much from the powdered Rheum Palmatum. The pulverised root of the Rheum Emodi is of a brownish color, it possesses less of the peculiar aroma, which is so remarkable in the Rheum Palmatum, and it is more astringent to the taste; leaving a strong flavor on the tongue, similar to that of bitter almonds. In its effects, the medicine now alluded to tinged the urine of those who took it, of a very deep color; it is less disagreeable to take than the Turkey rhubarb, less efficacious in large doses as a purge, very rarely producing griping; but much more effectual in small doses, as a tonic and astringent, in the cure of intestinal profluvia. We are much indebted for a supply of this valuable acquisition to the *Materia Medica*, to *J. F. Royle, Esq.* See his Report on Medicinal Garden at Mussoree, in the 4th volume of the Transactions of the Medical and Physical Society of Calcutta.

part of the western face of the great Himalaya range, that is named the Choor mountain; is often of singular efficacy, in the cure of obstinate cases of chronic diarrhœa. I know of no remedy which has proved so useful in the treatment of chronic diarrhœa, when that disease is accompanied by enlarged spleen. The most obvious effects of this remedy are, a gradual, but prompt decrease of the purging, and an improved appetite and digestion without any heat or febrile symptoms. The dose is five grains twice a day; and it is useful at the same time, to give the patient daily at noon the compound infusion of ipecacuanha, gentian, and camphor, prescribed at page 179. In cases where there is much debility, we may often derive great benefit from administering some of the decoction, or extract of Gulancha, in the middle of the day; at the same time, that five grains of the powdered Rheum Emodi are given night and morning.

The Gulancha or *Menispermum Cordifolium* of *Wildenow*, is much extolled by the natives for the cure of fever, and for preventing the return of intermittents. It is also used in almost all cases of debility; its properties are described by the natives as “bitter, astringent, and carminative; it is warm and pungent; it improves the appetite, and gives tone and warmth to the system. The decoction is made in the proportion of two ounces of the stem to a pint of water; of which the dose is two ounces. The extract may be taken in the dose of one drachm. This drug is

procurable in every part of the country, and at such moderate price that it is used by the poorest natives*.

CASE XXXVIII.—Murphy, aged 33. This man was in hospital from March to August, 1827, suffering with a chronic diarrhœa and general debility: for which he had used a variety of remedies with little or no benefit, on the contrary his purging increased when the rainy season commenced, and the debility was rapidly progressive: on the 7th of August, there were twenty stools in the course of the day and night.

Five grains of the Rheum Emodi were given night and morning, and no other remedy was used. On the 10th of August he had only four stools in the 24 hours, and his appetite had improved. The bowels were regular on the 13th of August, and the medicine was omitted.

CASE XXXIX.—Edward Wilson, aged 20, suffered from fever in 1827, which was followed by an enlargement of the spleen and diarrhœa; from the latter affection he suffered very severely, and on the 8th of August, he went to stool as often as 24 times in the course of the day and night; the evacuations were of a light orange color, and very fluid.

* The natives of India, have for ages been well acquainted with the excellent effects of the Gulancha in fevers, as well as in various diseases of relaxation and debility. See an account of the native drug Gulancha, in the 3rd vol. of the Transactions of the Medical and Physical Society of Calcutta, by *Baboo Ramcomel Sein*.

Five grains of the powder of the Rheum Emodi were given night and morning daily, until the 13th, he had only four stools in 14 hours, and was much improved in appearance.

CASE XL.—Woolley, a sailor, aged 24, had an enlarged spleen, attended with a very distressing diarrhœa, for the treatment of which he was for several weeks under my care in March and April, 1827, and tried various remedies for the removal of the diarrhœa, with little effect: he continued to be purged eight or nine times daily, until he commenced taking the Rheum Emodi, in the dose of five grains night and morning. His stools gradually decreased in frequency, until he had only three evacuations daily. The first supply of rhubarb, which had been sent to the hospital for trial, being all consumed on the 4th of April, we were obliged to omit that remedy. This patient had eight stools on the 5th of April, and was purged 18 times on the following day. Five grains of the common rhubarb (the Rheum Palmatum) were given night and morning for nine days, without any material amendment of the purging. This man derived more benefit, in the decrease of the diarrhœa, while the Rheum Emodi was used, than from any other prescription.

The powdered rhubarb, which proved so efficacious as a tonic and astringent in these cases, was prepared from the root of the wild rhubarb, the Rheum Emodi of *Wallich*, which was discovered by *Mr. Royle*, growing in great abundance at an elevation of 10,000

feet, on the western slope of the great Himalaya mountain.

The *cholerine*, or the diarrhœa which frequently precedes cholera, cannot in all cases be easily distinguished from other descriptions of alvine profluvia, of a less dangerous tendency. The more marked cases are distinguished by early coldness of the surface, a livid circle round the orbits, the eye is somewhat sunk, and the patient experiences a sensation of anguish, and sinking at the præcordia, with anxiety, restlessness, and debility, and occasionally a faintness: there is usually thirst, and frequency of pulse, and sometimes there is pain at the scrobiculus cordis, when pressure is made over that part. The stools at first are similar to those of common diarrhœa, but as the disease approaches that critical change which would authorise us to consider cholera to be impending, the evacuations have the appearance of thin gruel much diluted: sometimes the watery dejections are quite colourless, in other cases they exhibit a very slight tinge of yellowish bile, up to the time that the patient is reduced to a hopeless state from exhaustion.

With respect to the treatment requisite to be followed in the cholerine: it is a formidable or a trivial affection, just in proportion as the constitution may be suffering from the invasion of the early symptoms of cholera; a damp cool skin, sunk countenance, faintness, and frequent pulse, announce impending danger; and if the purging be not very speedily arrested on the earliest appearance of any,

of these symptoms, the disease soon ceases to retain its trivial name or character. In general, six grains of blue pill, with one grain of opium, may be given, and repeated once every two hours ; or a little laudanum in cinnamon water, will usually remove the more urgent symptoms of the disease. The patient should put on a flannel dress, and remain quiet in the recumbent posture, and take every two hours some sago or gruel, with a small quantity of brandy.

A considerable number of the cases of cholérine, when the affection prevails epidemically, claim careful treatment for several days, either on account of the tendency to sink into a state of cholera asphyxia, or from the slow progress of some febrile or inflammatory condition. Nevertheless, infinitely the greater number of these cases recover, so rapidly and so completely, that a medical man would be subject to ridicule, were he incautiously to name all such affections of the bowels, cholera ; and still it every now and then happens that a case, which is apparently slight, rapidly sinks into a state of collapse, and the patient's life is lost very suddenly.

After the febrile and inflammatory condition above alluded to, has been subdued by appropriate treatment ; some patients have had a prolonged purging, which has been removed by the following prescription :

R. Pulv. Rhei 3 ss.

Hydrarg. cum Creta 3 i.

Pulv. Ipecacuanhæ gr. vi. misce et divide in chart. vi.

One of these powders is directed to be taken at

G G

7 o'clock A. M., and to be repeated at noon, daily. One grain of opium, with six of blue pill, being ordered every night at bed-time.

A considerable number of the ordinary cases of chronic diarrhœa in this country, in which the constitution is not much impaired, resemble many of the milder cases of chronic dysentery, and may be cured by the treatment described at pages 178, 179, and 180, of this volume. In the very old cases more particularly noticed in this chapter, in which the disease depends on irritability and loss of tone of the intestinal canal; at the sametime, that the whole system is suffering from general debility, ascribable to the influence of climate, it is not surprising that the tonics, astringents, and aromatics, which seem indicated in such cases, frequently fail to produce any permanent good effect.

CHAPTER III.

DISEASES OF THE LIVER.

DISEASES of the liver, occur so often among Europeans, in combination with the Fevers, and Alvine Fluxes of Bengal ; that it is hardly possible to give a correct and complete account of Hepatic affections, without alluding to the cases wherein Fever or Dysentery may have been the original or more important complaint ; to which the liver affection has supervened. It may serve to convey some idea of the various Hepatic diseases which take place in this country, if a general statement be given, of the morbid conditions I have met with in the liver and its appendages, in the course of several years. We must at the same time bear in mind, that many liver diseases, do not prove fatal in their early and acute stages ; and therefore the first appearances of disorganisation, are not often to be met with in post-mortem examinations, unless on the rare occurrence of a person dying from accident, at the time that his disease is commencing. The functional disorders of the liver, which some practitioners consider numerous and important ; do for the most part elude anatomical investigation : and I apprehend that the number of those which are said to exist, would very

much diminish, if a critical inquiry were instituted respecting their pathology. It must be acknowledged that the presence of functional disorders of the liver, is often assumed to exist, on very vague and trivial grounds; and modes of treatment are adopted, in consequence of some imagined affection of the liver, which are not only unnecessary, but it is to be feared sometimes absolutely injurious. The uncertainty of the results of treatment pursued on such grounds, is much to be lamented. I trust, we shall not meet many practitioners in the present day, who are satisfied, without any distinct evidence on the subject, to ascribe every obscure chronic disease, to some functional disorder of the liver; and who suppose they are acting on reasonable principles, while they injure the patient's constitution by persistence in the use of mercury.

The following morbid appearances have been observed in the liver and its appendages, in the subjects which I have dissected in this country. Those diseased conditions first mentioned, have been the most frequent, nearly in the order now stated.

1. Morbid changes in the gall-bladder: the two opposite conditions of which part, appear in some measure, to depend on the period of the person's residence in India.

^a The gall-bladder increased in size, and distended with bile; by the pressure of which, the sulcus at the right lobe of the liver, for lodging the gall-bladder, becomes enlarged and deep. This state has been most commonly found in the

post-mortem examination of the bodies of persons who had recently arrived in India.

β The gall-bladder decreased in size, and disproportioned to the large sulcus in which it is lodged. In many of these cases, a false membrane is found covering the gall-bladder, and sometimes agglutinating it to adjacent parts. This morbid condition occurs in persons long resident in Bengal.

Frequent repletion, and habitual over-excitement of the gall-bladder, and irritation of the parts in its vicinity, with a disordered state of the upper portion of the intestinal canal, give rise to transient and circumscribed inflammation; which is often followed by a deposition of coagulable lymph, that covers the gall-bladder: while a similar exudation sometimes occurs in the cellular structure of the capsule of Glisson. This lymph which in many cases unites the base of the gall-bladder, to the adjacent portion of the colon, soon becomes organised, and like other newly formed parts of a similar nature, it is after a time subject to absorption and shrinking; whereby the gall-bladder, which had been formerly enlarged by frequent over-distention, becomes ultimately contracted. In the course of numerous dissections, we meet with every intermediate change in these parts, during the transition of disease from one condition to the other. In the early and more active stages of these circumscribed inflammations, the pain is acute, and at times attended with some pyrexia. The pain at the part affected, is liable to return often during many years; it is ultimately attended with no con-

stitutional disorder, and is then little noticed by the patient.

2. Enlargement of the liver ; its color being darker than in a healthy condition, from morbid accumulation of blood : the texture of the organ when in this state, is usually softened ; and the section made with a knife, bleeds freely ; in these subjects the peritoneal surface of the liver is often marked with numerous clusters of minute vessels, like the veins on the nose of an old gourmand.

3. Abscesses of the liver. These vary much in appearance ; and their peculiarities seem in some instances, influenced by the existing diathesis of the constitution. At present, I will hardly venture to do more than enumerate the morbid conditions that have been observed.

α A large quantity of puriform matter in a cavity, the contiguous parts of the liver exhibiting not much appearance of disease. The contents of the abscess, are in general thick pus of a healthy appearance and whitish color : in some cases the abscesses contain a dark-brown, or reddish serum, and then the adjacent parts of the liver are softened and gorged with blood. These are the acute abscesses which form in the course of fevers, acute dysentery, and in drunkards.

β In other cases, there is only a small quantity of matter, compared with the extent of the disorganization ; a considerable portion of the disease consisting in a quantity of large, tough, white or grey sloughs, hanging from the sides of the cavity, and nearly filling it : the parts on dissection much resembling the advanced stage of a large carbuncle. This disease more frequently happens in scorbutic subjects than in others.

γ In a few cases, we find a circumscribed abscess, the size of an orange; the matter deeply seated, and contained in a cavity, which is bounded by a thick coat of coagulable lymph.

δ Numerous small abscesses, the size of a filbert, dispersed through the substance of the liver; the cavities of some, lined with a thin coat of coagulable lymph; others without any lining, appearing as if scooped out with a sharp instrument, the intervening parts of the liver being soft, but not otherwise diseased. This morbid appearance is rare: it sometimes exists without much evident tumefaction of the liver. The subjects have been mostly delicate, and of scrophulous constitution.

On inspecting the bodies of persons who have died suddenly from accidents or otherwise, I have several times met with appearances in the liver, which were considered to be the incipient or preliminary stages of abscess. These were, serous interstitial effusions into the structure of the liver, near its convex surface: these spots were soft, of pale-grey color, and, if diffused and extensive, the adjoining part of the liver also, was found to be very soft for a considerable space. These may be considered the early changes which precede suppuration, of limited extent, and not very rapid in its progress: and had the patients not died suddenly from other causes, these effusions would have probably terminated in abscesses. I have also occasionally observed distinct, circumscribed, ecchymosed spots, at the concave surface of the liver.

In dissection of subjects, who died of abscess of the liver, I have twice found a small quantity of puriform matter in the right ventricle of the heart; and in both instances, was able to trace the same appearance with small filamentous coagula, back through the auricle and along the vena cava quite into the veins of the liver. The internal membrane of the hepatic veins was inflamed, but I could not discover any communication between the abscess of the liver and these vessels; and am therefore disposed to ascribe the formation of pus, to inflammation of the hepatic veins*. Both these patients had recently arrived in India, they were not of very temperate habits, and their complaints began as common diarrhoea of severe description. On referring to their cases, the only difference observed between these and the usual course of liver abscess, was the more active pyrexia in the early part of the disease; and

* Considering the frequency of hepatic abscesses in India, it is surprising that inflammation and suppuration are not oftener found in the great veins of the liver. *M. Gendrin's Histoire Anatomique des Inflammations*, affords instances of pus in the veins adjacent to ulcers of the intestines: and probably the great veins of the liver, will be found affected in a similar manner, when this subject is more critically examined on the post mortem inspections of hepatic abscesses. May we consider the fact of pus being observed in the veins of the intestines, above stated, as one link in the chain of events which occurs in those cases where abscess of the liver takes place at a late stage of bad cases of dysentery, attended by extensive ulceration of the intestines?

towards the conclusion unquenchable thirst, extreme anxiety, and frequent disposition to faint : but the patients never complained of palpitation, or any other symptom directly referred to the heart. In these cases, some degree of morbid heat of skin, continued to the last.

4. Adhesions of the liver to the diaphragm, colon, or stomach ; with more or less thickening of the peritoneal coat. It is surprizing how often suppuration of the liver occurs, without any adhesions of its peritoneal coat to adjacent parts, although the abscess be near the surface.

5. Black discoloration of a part of the liver. The concave surface towards the anterior edge more commonly affected than any other part ; this discoloration in some cases does not extend above half an inch into the substance of the liver, and it is rare that so much as the surface of half of one lobe undergoes this change of color : it is usually attended with some softening of the structure of the liver. This morbid condition has been observed in patients who have died after lingering febrile affections ; and in whom there had been no very distinct indications of liver disease during life : it has also been occasionally noticed in the post-mortem examinations of dysenteric subjects. I have not observed this appearance in those persons who died dropsical. We are not certain what has been the state during life, of the parts which are found after death, discolored as above described : I am disposed to consider the local

diseased action during life, to have been of a slow inflammatory description, with great congestion.

6. Tumors, varying from the size of a grain of barley, to the size of a bean ; situated in the capsule of Glisson. Two small bodies can always be found by careful dissection ; which from their structure, appearance, and uniformity of situation, I am inclined to believe are absorbent glands. One of them is situated near the termination of the gall-bladder in the cystic duct, the other at the upper part of the ductus communis choledochus. Enlargement of these bodies, produced by inflammation in the duodenum, and about the capsule of Glisson ; may cause closure of the biliary ducts. I have found the ducts obliterated, exactly at the point where these enlarged glands were causing pressure. If my view of the influence of these parts in disease, be correct ; we shall have a satisfactory explanation of one mode in which transient obstructions to the flow of bile into the intestine are produced, from temporary irritation of these glands, on the occasion of inflammatory disorders in the vicinity : and we see a distinct reason for obliteration of the cystic or of the common duct, in the chronic disease of old drunkards ; which is just the description of subjects, in whom the closure of the ducts most frequently takes place.

7. The liver is found enlarged, its color being generally unchanged, though sometimes paler than in a healthy state ; the surface of the organ distinctly marked by the pressure of the cartilages of the ribs.

This affection seems analogous to the œdema of the lower extremities, though rather firmer; and when the surface of the liver is punctured with a needle, it is seldom that any serum flows: a section of a liver in this state, bleeds but little. The patients have all been pale for a long time, and laboring under chronic leucophlegmatic disorders.

8. The liver of pale slate-color, with a slight induration, and toughness of its texture; the section bleeding but little: it has been seen in patients who were known to have had severe remittent fevers about 18 months or two years previously; and after a period of tolerably good health, they were again attacked with fever, which proved fatal after a protracted struggle.

9. Enlargement with paleness of color; the texture somewhat softened; and in some of these cases an oily stain may be observed on the knife with which a section of the liver is made.

10. Induration and enlargement of the liver, its color a pale drab, and the structure resembling cow's udder that has been boiled: the section bleeding very little. We sometimes see the same structure and color, in a liver that is decreased in size, and has its anterior edge rounded, notched, and adherent to the colon.

11. Puckered depressions, which appear like cicatrices on the convex surface of the liver: these are very rarely adherent to the adjacent parts. An incision through some of these, shews induration

from the deposit of coagulable lymph: though we find no condensation or fibrous structure, on making an incision through other marks which have the same resemblance to cicatrices.

12. Biliary concretions in the gall-bladder.

13. Concretions, in color and consistence like yellow soap, extending along the biliary canals, through a considerable space; the left lobe has been observed more frequently affected in this way than the right: it is a rare disease in Bengal.

14. Enlargement (relaxation?) of the hepatic duct; this has been observed in patients of light complexion, long resident in India. They complained of chronic diarrhoea for a long time, the stools being numerous, copious, fluid, and of pale yellow color.

15. Obliteration of the biliary ducts; only observed when the liver had undergone the changes described in sections 9 and 10. The patients for the most part drunkards.

16. Tubercles dispersed through the substance of the liver.

17. Hydatids; most frequently found about the anterior edge, and at the fissure near the ligamentum latum.

When a violent attack of acute hepatitis proves suddenly fatal, we sometimes find morbid appearances in neighbouring parts, produced simultaneously, by the same causes which gave rise to the inflammation in the liver: for example; in the post-mortem examination of the bodies of robust men, who had

been seized suddenly with symptoms of acute hepatitis, and who from their being so situated that they could not obtain efficient medical assistance, died within a short period from the commencement of the disease, I have several times found a sero-albuminous deposition to a considerable extent in the cellular structure of the mediastinum. In the same subjects the cellular structure at the root of the mesentery and mesocolon, more particularly at that part extending across the upper part of the lumbar vertebræ, and from thence towards the kidneys, has been found in a state of vascular engorgement, attended with more or less serous infiltration. These appearances have been observed in examining the bodies of plethoric sailors, who had been much exposed to fatigue and privations, during gales of wind, or when their ships have been driven on shore in the river Hooghly. Slighter degrees of similar morbid states, have been occasionally evident at the latter end of the rains, and the beginning of the cold season, on the inspection of subjects in which more protracted hepatic congestion and inflammation had been neglected, or injudiciously treated, and therefore abscess of the liver had formed. There can be no doubt that oppression at the chest, and tension of the belly, are occasionally produced and kept up by these morbid conditions, as well as by the turgescence of the liver. When dysentery has supervened on disease of the liver, at a remote stage of the latter malady, so that there has distinctly

been a precedence of the hepatic affection, and dysentery came on afterwards, when an abscess had already formed in the liver; the ulcerations which have been observed in the intestines, have been for the most part, small, superficial, and circular, though this is not invariably the case.

The symptoms which are observed in the course of a number of cases of acute inflammation of the liver, vary considerably, according to the part of the organ that may be affected, the extent of the disease, its period or duration, and whether it be in progress or on the decline;—as well as the condition of the patient's constitution, and the nature and degree of any coexistent diseases. When hepatitis attacks a plethoric person, and affects a large portion of the liver near its surface, involving the peritoneal coat of the liver, the disease being actively on the increase, and the organ itself considerably enlarged; there is no difficulty in recognising the nature of the disease. On the contrary, we have reason to believe that a slighter degree of disease may take place insidiously, affecting a small portion only of the liver, unattended with any obvious enlargement of that organ, or other very distinct symptom of hepatitis, and the process of suppuration may go on slowly; while the nature of the disease can not easily be detected at its early stage. Consequently it is a most important object with the practitioner, to study carefully all those circumstances connected with

the state of the constitution, and all the more indistinct local symptoms which may be found to attend the progress of insidious abscess of the liver.

Acute inflammation of the liver is indicated by pain at the right hypochondrium, or at the epigastrium ; which is increased on pressure : there is enlargement or fulness in those regions ; and more or less pain at the lower part of the chest, with impeded or oppressed respiration, and sometimes a cough. The bowels are usually costive, at the early stage of acute cases that commence abruptly. The patient cannot lie easily on the left side, and sometimes there is inability to lie on either side. Nausea and vomiting are often present, especially in the early stage of those acute cases where the concave surface of the liver is chiefly affected ; I have seen a patient in whom the vomiting was so urgent and distressing, that it was mistaken for Cholera, and from omission of sufficiently active treatment at the commencement, abscess rapidly formed, and the patient died. In some cases there is pain at the top of the right shoulder, and in others jaundice, though the first of these symptoms is not invariably present, and we very rarely meet with the latter of these affections in acute cases of hepatitis. The urine is generally high-colored, and the tongue loaded and moist ; but these symptoms vary as much as the degree of pyrexia, which, in the hepatitis of Bengal, is seldom of an ardent description. The constitutional disorder attendant on incipient liver disease, often commences like a common cold, or

a slight fever ; which goes on increasing slowly for several days, without interfering much with the patient's ordinary occupations. When the attack is more sudden, it is sometimes preceded by transient coldness, but there is rarely any rigor. The state of the pulse for the most part corresponds with the degree of fever present ; but when suppuration has taken place, the pulse commonly rises above 108 ; and symptoms of dysentery almost always occur, in the latter stages of the disease.

Inflammation of the liver is often far advanced towards suppuration, without the patient having suffered much pain ; but I have never seen a case terminate in abscess, without our being able, by a careful examination, to detect the disease that was in progress, long before there was any reason to believe that suppuration existed. The best mode of examination, is to place the patient on his back, on a couch, the head not being raised, then to remove the clothes from the chest and belly, and stand at the foot of the bed, so that we can see if the right side be enlarged, and the cartilages of the ribs heaved up, or if there be more fulness at the right side of the epigastrium than at the left. We must remember that inflammation sometimes takes place, and abscess forms in the left lobe only. When the patient is in the recumbent position, as above stated, we ascertain the existence of pain, or induration, by careful pressure over the right hypochondrium ; while the right false ribs and side are raised by one hand, so as to

carry the liver forward. Having examined the state of both the hypochondria, and of the epigastrium, during a full inspiration, as well as during a full expiration ; and when the right thigh is bent, as well as when it is extended ; we afterwards turn the person gradually over towards the left side, so that he shall be lying almost on his face, and then press carefully over the region of the liver, desiring the patient, at the same time, to make a full respiration. In obscure cases, percussion often affords valuable information in aid of our diagnosis.

The most unequivocal symptoms of acute hepatitis, and those which are seldom deceptive, are, a fixed pain in the region of the liver, which is not removed by purgatives, but is increased by pressure, or by a full inspiration ; a sense of oppression and fulness about the lower part of the chest, and across the epigastrium, at the same time, that there is palpable enlargement of the liver. Pain is felt at the top of the shoulder at some stage of the majority of those cases that terminate in abscess ; this symptom and vomiting certainly occur at dry and hot stations, in a greater proportion of cases of acute hepatitis, and they persist more steadily, or return more frequently during the course of the disease, than in the damp climate of the lower provinces of Bengal.

The symptoms already enumerated, are the outline, or general signs of acute disease of the liver. From observing a large number of cases, in the

course of several years past ; it appears to me that *superficial inflammation* of an acute description, at the convex surface, (not exclusively peritoneal inflammation,) usually occurs more frequently during the hot months of April and May, than at other seasons of the year : the disease is then more commonly ushered in by slight rigor ; the enlargement of the liver is less distinct at the commencement of the attack : there is more pyrexia, and more acute pain on a full inspiration, or on compressing the cartilages of the lower ribs with the palm of the hand ; cough is also a frequent symptom.

Although it is not easy in all cases of hepatitis, to point out the exact seat and extent of inflammation of the liver, or the progress it may have made towards resolution and recovery on the one hand, or the formation of abscess on the other ; still it appears to me that there are two important modifications of disease, differing decidedly from each other, and neither of them quite identical with the acute and superficial inflammation to which the greater part of the foregoing descriptions more particularly apply. I now allude to the inflammatory congestion, with tendency to central abscess : and to the complication of acute hepatitis, with inflammation of the capsule of Glisson, and adjacent parts.

The first of these, namely, the *inflammatory congestion, with tendency to central abscess* ; which is the most prevalent form of acute liver-disease in Bengal, appears more frequently during the rains, (from

June to September,) but the greatest proportion of such cases happens during the two first months of the cold season, from the 10th of November to the 10th of January. The enlargement of the liver, with tension at the epigastrium and across the hypochondria, are more evident in the early stages of this affection, than in the acute peritoneal inflammation; there is also more oppression at the chest, attended with impeded respiration: but there is less of acute pain on taking a full inspiration, and less morbid sensibility on pressing over the liver, than in the acute superficial inflammation. One very common symptom of the incipient stage of this tendency to central abscess of the right lobe of the liver, is, a much greater degree of *tension of the right rectus abdominis muscle*, than of the left; the muscle on the right side resisting pressure by a quick involuntary action, while the left rectus is lax, and other parts of the patient's belly are comparatively soft and elastic. I consider this one of the most undeviating symptoms of congestion, with incipient interstitial deposit into the texture of the liver, which commonly goes on to deep-seated abscess, unaccompanied by urgent symptoms of pain, or pyrexia. I have seen the left rectus muscle alone affected in this way, in patients who have afterwards died of abscess in the left lobe only. This symptom is of the more importance, as it takes place at an early period of the disease, when we can almost always effect a cure, by due persistence in a proper system of treatment.

The other description of liver affection; namely, that implicating the capsule of Glisson together with hepatitis, is sufficiently distinct from either of the former; it is common at all seasons of the year, and is found sometimes to follow fevers, in which V. S. has been too sparingly employed, or altogether neglected, or cases where the patients have not pursued a system of mild purgatives for a sufficient length of time during convalescence; but in far the greater number of cases, we cannot assign any reason for its origin. The patients complain of pain at a circumscribed space about four inches above the navel, and to the right, on a line drawn from the umbilicus to the point of the right shoulder; and the disease is attended by the following circumstances. The attack sometimes commences suddenly after eating, and in that case the food is usually vomited, whereby a transient relief is experienced; the respite is but short, for the pain soon returns, and pressure over the part cannot be borne; a full inspiration increases the pain, and the patient is unable to stand erect, or to lie straight in bed; he rests with the body bent forward, and inclining to the right side; there is great anxiety and the nights are passed without sleep, there is usually a sense of weariness and pain in the loins; tumefaction of the liver is seldom evident. In severe cases, the pain shoots back towards the lower angle of the scapula or up towards the shoulder; and is of the acute kind that is usually spoken of as a stitch or spasm, which prevents coughing or sighing. The

bowels are usually costive at first, the urine is in general high-colored, and jaundice sometimes takes place : there is a dry tongue, thirst, head-ache, and a frequent pulse, but not generally very high fever corresponding with the acute pain. In the latter stages of the disease, a distressing purging of black watery fluid takes place, and sometimes much blood is passed by stool. Severe cases, if not arrested by a very decisive and persevering treatment, will run their course in 20 or 25 days : during the last six or eight days of which time, the profuse discharge from the bowels usually attracts most attention ; and the patient dies from irritative fever, produced by inflammation and congestion, which affect not only the liver, but the capsule of Glisson ; and in some measure extend to the cellular structure round the duodenum, and at the root of the mesentery. It is not common for abscess in the liver to form, after the course of disease above described ; though that is sometimes the case.

A less acute affection of the same parts, is much more frequently met with ; there is pain referred to the same circumscribed spot above described, but it is less severe, and without shooting to the shoulder or scapula, and the pain is not very distressing even when pressure is made over the part : there is occasionally slight pyrexia ; and almost always a moist, yellowish, loaded tongue. In protracted cases, the tongue sometimes becomes clean and moist ; the urine is often high-colored for several days at a time,

and then resumes its natural color : the bowels are usually irregular, there being scanty, black, costive evacuations for a day or two ; and then fluid, scanty, stools of various colours, sometimes nearly white, at other times tinged with blood ; in fact most of the symptoms of this milder form of the disease, occasionally remit for a few days, so as to induce the patient to hope for a speedy recovery. There is occasional nausea, and as the disease makes more progress in a slow and insidious manner, the digestion becomes much impaired, the face sallow, haggard, thin, and lurid ; the limbs slowly emaciated, and the belly tense, and sometimes tumid. I have seen cases of this sort, which had existed during eight and ten months ; the patients having been repeatedly salivated and blistered, without a persistence in any very rational system of treatment. The disease is liable at any time to take on the acute characters before described, and to terminate in abscess of the liver : though in emaciated persons, it more commonly causes jaundice, or dropsy.

The causes of inflammation and abscess of the liver in Bengal, may be ascribed generally to residence in a tropical climate ; hepatitis appears to be excited by a humid atmosphere, and high temperature during the day, followed by cold nights ; the more superficial and acute inflammation certainly occurs most frequently during the dry hot months of April and May ; but we observe the inflammatory conges-

tion, with tendency to central abscess, more commonly taking place towards the latter end of the rains ; and at the beginning of the cold season, when considerable diurnal changes of temperature happen ; injuries of the side, as well as fevers and dysentery, also act as exciting causes of hepatitis. Europeans who have recently arrived in Bengal, are very liable to liver disease, from slight exposure to atmospheric vicissitudes, or to the common causes which produce fever in Europe. Habitual plethora, and superabundance of wine and spirituous liquors, as well as of stimulant food, beyond the real wants of the constitution ; doubtless keep the greater number of Europeans in India, in an almost perpetual state of proclivity to inflammatory and suppurative disease of the liver. The most common exciting causes of hepatitis, appear to be the diurnal alternations of temperature, which occur in Bengal at the beginning of the cold season, when the profuse perspiration, and high degree of irritation of the skin that had existed for many months, become restrained ; the predisposition to disease from the past hot season and rains, remaining. Although habitual intemperance does not appear to produce hepatitis, so often as might have been expected, there can be no doubt that its effect on the constitution has a very great influence on the result of that disease, as well as dysentery. Hepatic abscess often arises from the combined influence of several of the above causes, in Europeans of temperate and reserved habits of living. I do

not remember ever having seen an abscess of the liver, in a man who was at the time suffering much, from numerous painful and inflamed boils.

There seems reason to believe, that the stimulant and opium treatment of delirium tremens, occasionally lays the foundation of abscess in the liver, or I would rather express in other words, my belief, that hepatic abscess would less frequently follow delirium tremens, if that complaint when combined with febrile and inflammatory symptoms, were more commonly treated by antiphlogistic means*. At the same time I would not dispute the efficacy of

* The annexed extract from the London Medical and Physical Journal, shews the safety and benefit of antiphlogistic treatment, in the inflammatory and febrile stages of delirium tremens: but if that statement be intended to apply to the disease generally, without specifying the existence of ardent fever and local inflammation, the delirium tremens in Copenhagen must be considered as a modification of disease, which does not occur generally in this country. "In Friedrich's Hospital, Copenhagen; when delirium tremens was treated partially by antiphlogistics, with personal restraint of the patients, in 1820, one out of very four died; and in 1821, one out of $4\frac{2}{3}$: but in 1822, when a more strict antiphlogistic treatment was pursued, under the direction of Professor Herboltdt, the patients being allowed their liberty, only one died out of $9\frac{4}{5}$. In 1823, one out of 12; and in 1824, one out of $9\frac{3}{4}$. In the same Institution, an exciting treatment, (by opium and stimulants, we presume is meant,) without distinction of the cases, gave as its result; in 1817, one death out of every $2\frac{3}{4}$ patients; in 1818, one out of $2\frac{4}{5}$; and in 1819, one out of 211."—*Barkhausen on Delirium Tremens.*

large doses of laudanum in the ordinary cases of delirium tremens, with rapid pulse, extreme nervous agitation, and free perspiration; unattended by evidence of cerebral or gastric inflammation.

The following diseases are liable to be mistaken for affections of the liver, viz.: empyema, or hydrothorax of the right side of the chest; disease of the right lung; ulcers and some chronic disorders of the stomach; disease of the duodenum, or of the cœcum, and a loaded state of those intestines without actual disease; a scirrhus pylorus; an indurated pancreas; induration of the transverse colon, in severe dysentery, with a solitary large sloughing ulcer, and thickening of the coats at that part of the intestine; adhesion of the omentum majus to the cœcum, or to the brim of the pelvis, as noticed at pages 64 and 65 of this volume, in the remarks on Dysentery.

A neuralgic affection of the right side, dependent on an affection of the spine, has been mistaken for hepatitis; I have seen two instances of this sort, in which an affection of the spine in young women, attended with pain at the right side, had been mistaken for diseased liver, and treated with mercury, to the manifest disadvantage of the patients. A careful consideration of all the symptoms, with the history of the complaint, will in general enable us to ascertain when liver disease exists: though it is sometimes difficult to point out the precise nature and seat of the disorder.

The objects we most wish to accomplish in the treatment of severe cases of acute hepatitis, are, considerably to decrease the quantity of circulating fluid, and permanently to subdue the morbid action of the heart and arteries ; for the purpose of diminishing the size of the liver and of subduing the existing inflammation : while, by directing the patient to abstain from food, and to take very little drink, at the same time that purgatives are used ; we keep the system so empty that absorption shall be performed with activity. These objects may be accomplished by a steady perseverance in repeated depletion, by the lancet, leeches, and purgatives, until we have effected the dispersion of the vascular turgescence, and the absorption of that interstitial deposit, more or less of which exists in almost all acute inflammations of the liver, very soon after the disease commences. Supposing the patient to be first seen in the morning ; an active purgative should be given, and he should be bled from the arm to lb. iss. or lb. ii. The bleeding must be repeated every six hours, until the pain in the side, and fulness of the epigastrium be relieved. Three hours after the second bleeding, 20 leeches should be applied to the side or epigastrium, if any remaining tumefaction or pain should exist. It is very rarely requisite to bleed from the arm oftener in the worst cases, than twice or three times on the first day, and once on the second day : after which leeches must be repeated every forenoon, until the pain and fulness of the liver, with other symptoms of hepatic disease,

are removed ; reducing the number of leeches to 10, or 6, as the patient's strength becomes subdued, and as the progressive subsidence of the disease may permit. At advanced periods of acute hepatitis, I prefer applying leeches in the forenoon, because faintness is then less likely to take place than towards evening ; and because a continued flow of blood in the night, is apt not only to alarm the patient and prevent rest, but it occasions him to take stimulants, whereby the effects of a steady and well regulated system of depletion are apt to be contravened.

In all the severer cases of acute hepatitis, the patient's life depends on systematic pursuance of general and local blood-letting ; with quiescence, and strict attention to almost entire exclusion of food: even drink should be taken in limited quantity, while we are endeavouring to empty the vascular system. If the above plan be properly followed up, nearly all the active depletion that is requisite for cases which are treated at an early stage of the disease, may be accomplished in three or four days. After the purgative advised for the morning of the first day ; it is proper to give 10 grains of calomel, with six of compound extract of colocynth, and four grains of extract of hyoscyamus, in pills every night: followed each morning by as much compound powder of jalap, or infusion of senna with salts, as shall produce four free stools, in twenty-four hours.

If the patient's strength should become much reduced, and still tumefaction of the liver remain,

after pyrexia is subdued ; a blister of three inches square is to be put on the epigastrium, and kept open ; while six, or four leeches, are to be applied round the edge of the blister daily, so as to maintain such a drain from the capillary vessels, that the patient's strength may, if requisite, admit of its continuance for several days. After which, 3 ss. of camphorated mercurial ointment is to be well rubbed over the right side once a day ; and moderate purging kept up. By these means, we give the patient all the advantage possible from the properties which depletion and mercury possess, of reducing the size of the liver, subduing inflammation, and promoting absorption of inflammatory interstitial deposit ; and of removing congestion in the liver, as well as equalising the state of the circulation in the capillary vessels over every part of the system. It appears that when copious depletion is premised, the beneficial effects of mercury are produced to the greatest extent, when it is at first combined with purgatives, and afterwards given alone, so as to produce the commencement of salivation ; and even then, we are often induced by the good which mercury has already done, to try one or two doses more at longer intervals : or to prolong the favorable action already produced on the system, by giving blue pill instead of the calomel at night.

Blisters are capable of producing infinite injury, if improperly used. The best time to apply a blister, in the treatment of acute disease of the liver ; is,

when depletion has been pursued till it is ceasing to be of service, and when the pyrexia and excitement of the system, as well as the active stage of local disease are subdued. We are then justified in trying the effect of counter-irritation, and of producing a discharge from the surface ; by which, we may hope at this stage of the disease to accelerate absorption, through the means of an external stimulant, though we fear yet to make much increase in the patient's allowance of food ; lest by filling up the vascular system, we should cause a return of acute symptoms. I know that blisters are sometimes applied in those stages of the disease, when injury may be done, by exciting some acceleration of the pulse, and causing that slight increase of pyrexia, which are to be expected from a blister, in the early stage of almost any acute disease. Its premature application, is also liable to be attended with the negative evils of interfering with proper depletory measures ; and of preventing examination of the state of the liver, before acute disease is removed.

The active treatment above described, is requisite in the acute disease of robust subjects, in which there is palpable enlargement of the liver, with pyrexia. In very delicate habits, when the patient is seen early, some modification of the remedies may be admissible : indecisive and unsteady treatment, will insure a prolonged disease, hardly less destructive to the delicate, than to the robust constitution ; and I hardly know how to advise indecisive measures in any case, until the disease be entirely subdued.

I cannot too strongly express my opinion of the absolute necessity of examining every case of hepatitis so carefully, that we shall be able to form a decided opinion as to the nature and progress of the malady ; and having formed that opinion, we should pursue the requisite plan of treatment, with decision and undeviating steadiness, not only for the purpose of relieving the more urgent symptoms of the disease ; but with the determination of removing such morbid changes as we are convinced from experience, usually attend local inflammation when it has made a certain progress. After the symptoms of the disease have been entirely subdued, the practitioner should say, what changes of structure are likely to have been produced by hepatitis, which has existed to the degree, and for the period, which has occurred in this case, and what will be the effect of allowing much food, of such a description as shall either stimulate, or quickly produce repletion of the system, while any tendency to the recurrence of disease remains. These questions would lead to reflections which would induce a most careful medical treatment during convalescence, and a very guarded conduct with respect to diet, which should be limited in quantity, and of the mildest description, for a long time after recovery.

In acute cases, in which the disease has continued a considerable time before the patients come under treatment, we must employ our remedies with great perseverance, as well as precision : and the

order in which those remedies already specified, are applied, is by no means unimportant. The attempt to unload the vessels of the liver in a plethoric subject, by leeches, without previous V. S., is as unreasonable as an attempt to drain a morass at one side, while a large stream is flowing into it on the other. After cutting off part of the supply to the liver, by diminishing the quantity of blood in the system, leeches will be found of the greatest benefit.

In all cases of liver disease, where we have occasion to use the lancet, I would bleed the patient while in the recumbent position ; because I know of no good that follows syncope in such cases ; the abrupt changes of the circulation that occur in fainting, and in subsequent recovery from that state, are of no use. In almost every case of acute hepatitis, the more urgent symptoms, are mitigated long before the internal disease is completely subdued. The history of a large proportion of the abscesses of the liver that prove fatal, would shew us a remission of acute symptoms, after a few days of very judicious treatment, which remission appears to have occasioned a deviation from a proper course, both in diet and medicine ; a gradual return of an unfavorable state is the consequence, and a more intractable disease becomes established, although the symptoms are usually more slow and less urgent than at first ; but the result is the loss of the patient's life. Even where the early treatment of a severe case has been exceedingly deficient, a deceptive cessation of acute symp-

toms sometimes occurs at a particular period of the disease, and that is at the time when inflammation and vascular engorgement have gone on until effusion or interstitial deposit has taken place: the morbid tension of the vessels is thereby much decreased, and an incautious person is led to remit his attention, just at the moment that the utmost vigilance is requisite, and in fact, when the greatest science and skill can hardly save life.

The acute stage of superficial inflammation of the liver, and the inflammatory congestion, with tendency to central abscess, both require nearly the same treatment above described. The latter disease is usually more tardy in receding, and requires to be treated during its decrease, by a more prolonged and undeviating system of depletion, by a regulated and very spare diet, and by diligent employment of the less active antiphlogistic measures for a long period: followed by a course of resinous purgatives, with blue pill at night; and small doses of Cheltenham or Epsom salts in the mornings. In many cases in which the liver was so much enlarged, that its anterior edge could be felt, rounded, and extending more than a finger's breadth beyond the margins of the cartilages of the ribs; (the disease being in its early stage, and pressure over the right hypochondrium painful,) I have seen the enlargement of the liver so much reduced in 12 hours, by allowing very little food or drink, and by the employment of free blood-letting from the arm, twice, and the appli-

cation of 20 leeches ; that the edge of the liver could not be again felt, and the subsidence of the general intumescence across the epigastrium and hypochondria, was very remarkable. At later stages of the disease the efficacy of our remedies is much less evident*.

The inflammatory condition more especially affecting the capsule of Glisson, attended with much hepatic congestion, requires, in its acute forms, all the same science and precision for its removal, which we could wish to see employed in the other acute diseases above described. The milder description of the same affection, which is much more commonly met with, is only dangerous when entirely neglected, or treated in an unsteady and unscientific manner. In persons of a spare habit, we find this slighter degree of disease, frequently not demanding blood-letting from the arm : but a daily repetition of

* Those who have not attended carefully to the immediate effects of copious blood-letting, in reducing the size of the liver, when the enlargement of that organ from vascular engorgement is very palpable, cannot be aware of the promptitude with which the intumescence may be diminished, and the degree to which relief may be afforded in such cases by the use of the lancet. We learn from *Majendie's* experiment of opening the cavity of the abdomen of an animal, and observing the state of the viscera while blood is taken from a vein, that the decrease in the size of the liver even while the blood is flowing is very remarkable. *Piorry's* *Procédé Opératoire*, contains an account of early and great reduction of absolute size of the liver, by V. S., when that organ was in a state of active congestion, for the details of which refer to the *Encycl. of Pract. Med.* Part xiv. p. 50.

leeches is necessary for a long time. The protracted cases, that come for treatment at a late period, require leeches daily, from two to six weeks; at the same time, that mild purgatives are used, and a regulated and very slender diet is allowed. The patient should remain in tranquillity, in the most healthy situation available, during the progress of his cure. Some of the slighter cases, doubtless, occasionally admit of spontaneous recovery after a protracted period: but life should never be trusted to this chance.

CASE XLI.—James Gray, *Æt.* 30, a soldier, eight years in India, of middle size, and light complexion; admitted into the Hospital, on the evening of the 14th November, 1830. He had been ill four days with purging and griping; his belly was generally tense; the liver was tumid, and painful on pressure. Pulse 98, and full; tongue white; illness ascribed to drinking spirits.

V. S. ad $\bar{3}$ xx.

R. Calomel.—Extract. Colocynth. Comp. āā ∅ ss.

November 15th.—The blood is not buffy; he had eight stools during the night, which have not been kept for inspection: he says that he passed some blood; the tumefaction of the liver has not subsided, and he is not relieved in any respect; he has now most pain at the epigastrium; his face is flushed, and there is a slight degree of morbid heat of the skin; the pulse 96, and softer.

V. S. ad lb. iss. at 7 A. M.

Calomel.—Extract. Colocynth. Comp. āā ÷ ss. after the bleeding.

Apply 16 leeches to the epigastrium at noon,

And give Pulv. Jalap. Comp. ʒ i. at mid-day.

Vesper.—The blood drawn in the morning is slightly cupped, and buffy; he has had eight stools during the day, and is cooler.

R. Extract. Colocynth. Comp.—Calomel. āā ÷ ss. at bed-time.

Nov. 16th.—He has had five stools in the course of the night, and his belly is softer; there is less morbid sensibility on pressure over the liver.

Apply 16 leeches over the region of the liver.

Pulv. Jalap. Comp. ʒ i. at 7 A. M.

Oleum Ricini ʒ i. at noon.

Extract. Colocynth. Comp.—Extract. Hyoscyami—

Pil. Hydrarg. āā gr. v., in three pills, at bed-time.

Nov. 17th.—Some hardness remains in the region of the liver, but there is very little pyrexia; he has been freely purged.

Apply eight leeches to the region of the liver.

Extract. Colocynth. Comp. ÷ ss.

Pil. Hydrarg. gr. v. in the morning.

Oleum Ricini ʒ i. at noon.

Nov. 18th.—He has been freely purged, and is much better in every respect.

Apply four leeches to the region of the liver.

Extract. Colocynth. Comp.

Pil. Hydrarg. āā gr. v. morning and night.

After this date, he was purged daily with jalap, or colocynth and blue pill. On the 21st of Novem-

ber, his belly was soft and flat ; no sign of induration of the liver remained. Mild purgatives were continued daily, and on the 23rd, he was reported convalescent. The only food allowed was tea, and four ounces of bread twice a day, until the 17th ; after that, a small quantity of thin sago was given daily, at 3 P. M., and on the 22nd milk diet.

In this case, hepatitis was combined with considerable enlargement of the liver, and a slight degree of inflammation of the mucous membrane of the intestines : and this complication of disease was in great measure subdued by bleeding freely from the arm, twice, and the application of 16 leeches within the first 18 hours after the patient came under treatment.

CASE. XLII.—A small but muscular man, of dark complexion, aged 20 ; (in India for four years, employed in mercantile affairs :) applied to me on the 12th June, 1830, in the evening, on account of acute pain in the region of the liver, which affected respiration, and prevented his lying on the left side. There was slight pyrexia, and fulness with tension at the epigastrium, and towards the right hypochondrium. He ascribed his illness to a bruise on the liver, by a fall 19 days previously, and he had been gradually getting worse for four days. He had followed no treatment, until yesterday, when 30 leeches were applied, and he took one dose of salts.

He was bled to oz. 20 ; and four hours afterwards, 20 leeches were applied to the right side. The

only food allowed was tea, and two ounces of bread twice a day.

R. Calomel.—Extract. Colocynth. Comp. aa 3 ss.

Misce, et divide in pil. x.—Ordered to take three pills at bed-time.

Pulv. Jalap. Comp. 3 i. early to-morrow morning.

June 13th.—He has been purged freely, and can breathe more easily, but turning on the left side causes some pain in the liver. The blood has not been kept for inspection.

Apply 20 leeches to the right side, at 10 o'clock A. M.

Let three pills be repeated at bed-time; and Pulv. Jalap. Comp. 3 i. early to-morrow morning.

June 14th.—He has been purged freely; the tumefaction of the liver has subsided; he is pale, and free from pyrexia; but still has slight pain in the liver on a full inspiration, or on turning to the left side.

Apply four leeches to the region of the liver.

Two of the pills ordered on the 12th at bed-time.

Oleum Ricini 3 i. early to-morrow.

He was now allowed some more bread with his tea; and a small cup of thin sago, at noon.

June 15th.—He is free from pain or pyrexia, and quite pale; there is now slight yellowness of the eyes, not before noticed; urine not much colored.

Apply four leeches to the region of the liver.

Repeat two pills at bed-time; and let him take a small dose of Cheltenham Salts, early to-morrow.

June 16th.—He feels well; but is pale, weak, and hungry.

R. Scammon. Gummi-resin.—Ext. Colocynth. C. aa ʒ ii.
Saponis Duri—Cambogiæ aa ʒ i.

Misce, et divide in pil. xx. He was directed to take one pill every night, and a small dose of Cheltenham Salts, every morning; observing a restricted diet, and taking gentle exercise.

On the 20th June, he felt a slight return of pain in the region of the liver, which was increased on the 21st, and then he applied again for advice. There was at that time a distinct fulness at the edge of the right false ribs, and morbid sensibility on pressure at that part. The pulse was 96, while he was recumbent, and 104, when he was sitting up; the urine was pale-colored, and he complained of slight thirst; the tongue was clean and moist. He was very pale, and had by no means recovered from the effects of the active antiphlogistic treatment pursued during the previous week.

He was directed to live on bread and tea. A dozen leeches were applied over the region of the liver daily, on the 21st, 22nd, and 23rd; eight on the 24th, and as many on the 25th. Ten grains of calomel, and ten of compound extract of colocynth, were given on the nights of the 21st and 22nd; followed by a brisk purgative of compound jalap, with scammony, on the following mornings. After which, he took two of the purgative pills ordered on the 16th of June, with six grains of blue pill every night, for a week; and in the mornings some Cheltenham salts. By these means the pain in the

side and tumefaction of the liver were subdued, and he soon afterwards proceeded to sea; but was repeatedly leeches and blistered during the voyage. He has since recovered robust health.

In this instance, the hepatitis was ascribed, and I think with good reason, to a severe blow on the right side, subsequently to which the patient had continually suffered some pain, which became very severe for four days before he came under my care. The above case, and that which follows it, both shew how apt hepatitis is to relapse, even after the most active remedies, if not carefully treated during convalescence.

CASE XLIII.—Thomas Chamberlain, *Æt.* 36. A soldier, 10 years in India; a tall and rather stout man, of light complexion. Admitted into the General Hospital on the 13th October, 1830. He has been for five days complaining of pain in the right shoulder, on which part a liniment has been rubbed, and he has taken two doses of purgative medicine. He is now suffering from pyrexia, a flushed face, and tense full belly; the respiration is quick, and his ailments are believed to have arisen from intemperance in drink.

V. S. ad lb. iss.

R. Extract. Colocynth. Comp.

Calomel. $\bar{a}\bar{a}$ 3 ss. at 6 A.M.

Pulv. Jalap. Comp. 3 i. at noon.

Four P. M.—He has been freely purged; the blood taken in the morning is florid, and not buffy: his face is less flushed; but the pain in the shoulder

is not easier; the right rectus abdominis muscle is more tense than the left.

Apply 16 leeches to the belly at 4 P. M.

R. Calomel.—Extract. Colocynth. Comp. āā 9 ss.

Oct. 14th.—He has had seven stools during the night; the pain in the shoulder remains, there is a fulness at the epigastrium, and the tension of the right rectus abdominis muscle continues; the edges of the tongue are moist and red: there is some grey mucus on its centre: the pyrexia is decreased.

V. S. ad lb. i.

Apply 10 leeches to the epigastrium.

Oleum Ricini 3 i.

Oct. 15th.—The blood drawn yesterday was buffy; the leeches bled profusely: he was purged four times; and has less pyrexia, but a slight degree of heat of the forehead remains; the tongue is dry, and white in the centre; he has less pain in the right shoulder.

Let sixteen leeches be applied over the liver.

Calomel.—Extract. Colocynth. Comp. āā 9 ss. at 7 A. M.

Pulv. Jalap. Comp. 3 i. at noon.

Oct. 16th.—He has had eight stools in the last 24 hours; the leeches bled well: some morbid heat of the forehead remains; but there is no pain in the shoulder; his belly is not tumid, but the abdominal muscles are still tense.

Apply 10 leeches to the region of the liver.

Let the pills be repeated as yesterday morning,

And give Castor Oil 3 i. at noon.

After this he took some purgative medicine daily, and was getting better till the 22nd; when there was a slight indication of increased hepatic congestion, without pyrexia; which was ascribed to his having eaten meat the day before. He was restricted to milk diet.

Six leeches were applied to the belly.

Calomel gr. v.—Extract. Colocynth. Comp. ʒ ss. were given in the morning.

And Pulv. Jalap. Comp. ʒ i. at noon.

From this time he took purgatives of compound extract of colocynth and blue pill; or of jalap, daily; and was discharged well on the 1st of November, 1830.

CASE XLIV.—Hugh Gilmer, Æt. 38; a stout and muscular sailor of the ship *Fergusson*; was admitted into the General Hospital at 6 o'clock P. M. on the 4th of November, 1833. He stated that he had been suffering from colic and obstructed bowels for a week, during which time he had endured much pain in the belly generally. The abdomen was hard and inelastic, but not very tumid, and there was a slight degree of pyrexia, with an anxious expression of countenance.

He was immediately bled to lb. i.

A purgative enema was administered, and he took 20 grains of calomel, and a synapism was applied to the epigastrium, and in four hours afterwards one ounce of Castor Oil was administered.

Nov. 5th.—The blood drawn last evening is not buffy; copious evacuations of black fæces, both solid

and fluid, have been procured; and he feels much relieved, but still complains of some pain at each side of the belly, on a level with the navel; the abdomen is not so hard and tense as yesterday, and a slight degree of enlargement of the liver can be felt; but he says pressure over the right hypochondrium causes no pain; there is no morbid heat of the skin, and his pulse is only 60, and neither hard nor full.

Apply 12 leeches to the right hypochondrium.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. āā gr. vi. at 7 A. M.

R. Pulv. Jalap. ʒ i.—Magnesiæ ʒ ii.

Aquæ Menth. Sativæ ʒ iss. misce, to be taken at noon.

Nov. 6th.—He was purged freely three times yesterday, the stools were very dark coloured and fluid, but feculent. He now complains of pain at the right side, which extends as low down as the level of the navel, and from thence upwards round the right side of the lower part of the chest. The pain is acute, and he cannot turn on the right side, nor lie on his back, as the attempt to do so increases the pain in the side. The skin generally is cool and moist; pulse only 72, soft and rather weak, but the face is flushed. Some enlargement of the liver can be felt, and the belly is hard. There is no pain in the right shoulder.

V. S. ad ʒ xx.

R. Calomel. ʒ ss. Extract. Colocynth. Comp.

Pulv. Antimon. āā gr. iv. in pills at 8 A. M., and repeat a similar dose at noon, and again at 6 P. M.

Apply ten leeches to the right side, at the lower part of the chest, and foment the part for two hours after the leeches are removed.

Vesper.—The blood drawn this morning is buffy; he has been freely purged, and is better. Pulse 84 and soft.

Nov. 7th.—He slept little, and seems anxious. Pulse 90, but not either full or hard; there is no morbid heat of the skin. He says that he now feels very little pain, but the muscles of the belly remain tense and hard.

Apply eight large leeches to the right side, rather lower than those which were put on yesterday, and foment the part after the removal of the leeches.

R. Calomel. gr. vi. Extract. Colocynth. Comp. gr. xii. in three pills at 8 A. M., and repeat the dose at two o'clock P. M.

Vesper.—He has had three dark watery stools, and feels easier, the muscles of the belly are still tense.

Repeat the dose of pills as at two o'clock.

Nov. 8th.—He slept little, and says he is better; but the hardness and enlargement of the liver can be distinctly felt. Pulse 96 and free, and there is some morbid heat. He cannot now lie on his left side.

Let a purgative enema be given immediately.

V. S. ad lb. i. at 7 A. M.

Apply eight leeches to the region of the liver at 10 A. M., and foment the side for two hours afterwards.

R. Calomel. 3 ss. Pulv. Antimonialis.

Extract. Colocynth. Comp. āā gr. iv. in three pills at 7 A. M. and repeat a similar dose at noon and at 4 P. M.

Vesper.—The blood taken this morning is buffy; he has had several dark-colored watery stools, and

says that pressure over the region of the liver causes no pain.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. āā gr. vi. H. S.

Nov. 9th.—Slept, and says he is better : there is no morbid heat of skin ; pulse 96, soft, and rather small. Some enlargement of the liver can still be felt, but he says pressure does not cause any pain. No stool in the night.

Apply 16 leeches to the region of the liver.

Repeat the pills as yesterday morning at 7 and at 10 o'clock ; and let one drachm of Compound Powder of Jalap be taken at noon.

Vesper.—He has had several scanty feculent stools, of dark-grey color ; the mouth is slightly affected by mercury.

Pills to be repeated as last night.

Nov. 10th.—Slept and has had no stool in the night. The enlargement of the liver can still be felt, and the right hypochondrium is rather hard and tense.

Apply 12 leeches to the region of the liver, and foment after their removal.

R. Pil. Hydrarg. gr. vi.—Extract. Colocynth. Comp. gr. xii. in pills at 7 A. M., and give one drachm of Compound Powder of Jalap, at noon.

Nov. 11th.—He has been purged freely four times ; slight enlargement and hardness of the liver can now be felt, the muscles of the belly are still tense, but pressure over the liver causes no pain.

Apply 12 leeches to the right side.

Medicine to be repeated as yesterday.

Nov. 12th.—He has been purged freely five times ; slight hardness of the right side remains.

Apply 12 leeches to the right hypochondrium.

Medicine as on the 10th.

Nov. 13th.—No material change ; he has been freely purged.

Apply 12 leeches to the region of the liver.

Medicine repeated as on the 10th.

Nov. 14th.—He has been freely purged, the stools are still dark-colored and fluid, but feculent. The belly soft and elastic. He says he is well, but a slight degree of hardness of the edge of the liver can still be felt.

Eight leeches to the right side.

All medicine repeated as on the 10th. The same medicine and eight leeches were repeated on the 15th.

Nov. 16th.—No hardness or enlargement of the liver now perceptible ; a slight degree of morbid tension of the muscles at the right side of the abdomen remains.

A blister was ordered to the right hypochondrium, to be kept open for ten days, and a purgative was given daily in the morning.

He was allowed no food except tea and bread, for the first nine days. On the 12th November, bread and milk were ordered, and on the 24th, a chicken and vegetables. He was discharged well on the 29th of November, 1833.

In this patient, it is probable that a considerable degree of vascular engorgement, if not inflammation of the abdominal viscera generally, existed. But there was so little pyrexia, and the pulse was so soft and slow, until after the blood-letting on the 6th November, that longer intervals were allowed to elapse before the blood-letting was repeated, than is either proper or safe in acute cases; and the consequence was, that a tedious repetition of leeches and purgatives was requisite, for many days. It will be observed, that on the 6th November, the patient was found lying on his left side, and he said he could not turn to the right. On the 8th, he was found lying on the right side, and said he could not rest on the left. It was then ascertained that he had endeavoured by every means to conceal the degree of severity of the pain in the right side, which was so distressing that when he returned to bed after rising to stool, he could cautiously place himself on either side, but being once placed, he could not turn without great distress. This concealment, and the slight degree of pyrexia present, will account for the want of promptitude and freedom in the use of the lancet at an early stage of the disease.

CASE XLV.—John Bruce, aged 25. A small man, of light complexion; eight years in India. Admitted into the General Hospital, on the evening of the 1st June, 1830; having been ill ten days, with pain in the region of the liver. The belly is

now full and elastic, the right hypochondrium is tense and painful; the right rectus abdominis muscle is more tense than the left, and re-acts strongly if pressed. Pulse 96 and soft; there is slight morbid heat of skin; the tongue is moist and covered with a little white mucus. He complains of diarrhœa.

V. S. ad lb. ii.

R. Extract. Colocynth. Comp.

Calomel. āā gr. x. To be taken in three pills, at bed-time.

June 2nd.—The blood drawn last evening is buffy, and cupped; he has been purged three times; the belly appears less tumid, he has less pain, and there is very little pyrexia; his tongue is moist, pale, and nearly clean.

V. S. ad lb. iss.

R. Pulv. Jalap. Comp. 3 i. at 6 A. M.

Apply 16 leeches to the region of the liver at noon.

Vesper.—The blood taken at the morning visit is buffy and cupped. There is at present no pyrexia; the belly is soft; he has not been freely purged, but has been vomiting; the leech-bites are bleeding freely.

Enema Purg. statim.

R. Calomel. 3 i.—Extract. Colocynth. Comp. gr. vi. misce, fiant pil. iii.—Three pills to be taken at bed-time.

June 3rd.—The leech-bites are still bleeding; he had four stools during the night, and slept at intervals. There is slight pyrexia; pulse 102, and soft; the tongue is loaded, white, and moist. He appears considerably reduced by the treatment.

Apply six leeches to the epigastrium.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. āā ÷ ss. in pills, at 6 A. M.

Olei Ricini ʒ i. at noon.

Vesper.—He has had three scanty stools, of dark color; there is no pyrexia at present, and he says no pain in the side.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. āā ÷ ss. in three pills, at bed-time.

June 4th.—No stool during the night; there is at present some pyrexia; muscles of the belly still tense.

Apply 16 leeches to the belly.

R. Extract. Colocynth. Comp.

Calomel. āā ÷ ss. in three pills, at 6 A. M.

Pulv. Jalap. Comp. ʒ i. at noon.

June 5th.—He has been purged six times; some enlargement of the liver still remains, but there is no pyrexia.

Apply 10 leeches to the region of the liver.

Repeat medicine as yesterday.

Vesper.—The leeches bled freely; he has not been sufficiently purged this day.

R. Olei Ricini ʒ i. statim.

June 6th.—He has been purged three times during the night; the mouth is sore from the effect of the mercury; pulse 90; liver decreased in size.

R. Pulv. Jalap. Comp. ʒ i.

— Scammon. Comp. (Ph. Ed.) ÷ i.

Aquæ Font. ʒ i. misce, statim sumend.

Olei Ricini ʒ i. at noon.

June 7th.—The evacuations from the bowels are still scanty; there is no pyrexia, he has become very

pale, but the enlargement of the liver is not yet entirely removed.

Apply four leeches to the right side.

R. Extract. Colocynth. Comp, \varnothing ss.

Pil. Hydrarg. gr. v. in three pills at 6 A. M.

R. Pulv. Jalap. Comp. \mathfrak{z} i.

— Scammon. Comp. \varnothing i.

Aquæ Font. \mathfrak{z} iss. misce,—to be taken at noon.

Olei Ricini \mathfrak{z} i. at 4 P. M.

June 8th.—He has had four stools; the mouth is more affected by the mercury, and there is less induration of the liver.

R. Infus. Sennæ Comp. \mathfrak{z} ii.

Magnesiae Sulphatis—

Sodæ Sulphatis āā \mathfrak{z} ii. misce.

To be taken at 6 A. M.—and repeated at noon.

June 9th.—He has been purged five times. No other change.

Medicine repeated as yesterday.

Apply a blister over the region of the liver.

June 10th.—No alteration in the symptoms. Ordered to take daily,

Pulv. Jalap. Comp. \mathfrak{z} i. in the morning :—and every night the two following pills.

R. Scammon. Gummi-resin.—Extract. Colocynth. Comp. āā gr. iv. Saponis Duri—Cambogiæ āā gr. ii.—misce, et divide in pil. ii.

June 18th.—He had four or five stools daily from these medicines, and was improving until this date; when some tension of the right rectus abdominis muscle was again observed, but pressure gave no pain, and he had no pyrexia.

Eight leeches were applied over the region of the liver.

He had Pulv. Jalap. Comp. ʒ i. in the morning.

Olei Ricini ʒ i. at noon.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. āā gr. viii.

Extract. Hyoscyami gr. iv. in pills, at bed time.

June 19th.—He has been purged five times, and there is less tension of the right rectus muscle.

Apply four leeches to the belly.

Pulv. Jalap. Comp. ʒ i. to be taken at 6 A. M.

Night pills repeated as ordered on the 18th.

After this, his bowels were kept free, and he was discharged well on the 5th of July, 1830. He remained in good health, and followed a very active occupation.

The diet was restricted to tea and bread, until the 17th of June; after that sago was also allowed; and from the 20th of June, he had bread and milk.

In this case, hepatitis of ten days' duration, appears to have been attended with some degree of inflammation of the mucous membrane of the intestines. A treatment commenced at so late a period, subdues disease but slowly, and on the 18th day after his admission into Hospital, and the 28th from the commencement of his illness, we find inflammation again appearing, so that further depletion was requisite.

CASE XLVI.—Henry Weager, aged 55. A stout man, of light complexion, 39 years in India, of active habits and temperate. Was admitted into the General Hospital on the 11th July, 1827, at 1 P. M.

He had been suffering for 10 days with pain in the region of the liver. His illness was slight at first, but the pain has increased much this day, and is attended with pyrexia. Pulse 98, and full; pressure over the liver causes extreme pain.

V. S. ad $\frac{3}{4}$ xxxiv.

R. Pulv. Jalap. Comp. $\frac{3}{4}$ i.

Five P. M.—The blood is buffy, and much cupped; he has been purged twice, and the pyrexia is somewhat decreased, but the pain in the liver is unabated. Tongue loaded with grey mucus.

Apply 12 leeches to the region of the liver.

Ordered to take Calomel.—Extract. Colocynth. Comp. āā $\frac{3}{4}$ ss. in pills.

July 12th.—He has been purged, and is easier; pyrexia somewhat moderated, but pressure over the region of the liver causes acute pain.

V. S. ad lb. i.

Apply 16 leeches to the right side, in four hours.

R. Calomel. $\frac{3}{4}$ ss.

Extract. Colocynth. Comp. gr. v., in pills, at 6 A. M., and repeat at noon.

July 13th.—He has had only three scanty watery stools, and feels better, but still suffers from pain in the region of the liver.

Apply 16 leeches over the region of the liver.

R. Calomel. $\frac{3}{4}$ ss. in pills, at 6 A. M.

Olei Ricini $\frac{3}{4}$ vi. at noon.

Vesper.—He has been purged twice, and the pain is decreased. Tongue cleaner.

R. Calomel.

Extract. Colocynth. Comp. āā gr. v.

July 14th.—He had two, feculent, bronze-colored stools during the night ; is free from pyrexia, and has less pain in the liver.

Apply six leeches to the epigastrium, and repeat the pills morning and night, as yesterday.

July 15th.—He has had three stools ; his mouth is sore, the effect of the mercury already taken ; he complains of debility, and has some pain in the region of the liver, unattended with pyrexia. Pulse 76, and soft.

Six leeches were applied to the epigastrium, and he took Calomel.—Extract. Colocynth. Comp. āā gr. v. at 6 A. M.

July 16th.—He is better.

Six leeches were applied to the right hypochondrium, and he had Pulv. Jalap. Comp. 3 ss. at 6 A. M.

July 17th.—He was purged twice, and is now nearly free from pain. Treatment of yesterday repeated.

July 18th.—There is no change since yesterday. He took an ounce of castor oil, and a blister was applied over the region of the liver.

July 19th.—He was freely purged, the mouth is more affected by the mercury, and he has very little pain in the side.

R. Pulv. Jalap. Comp. 3 ss. at 6 A. M.

July 20th.—He is free from pain, and feels better. The jalap was repeated.

July 24th.—He remains without pain, and is well but weak.

R. Decoct. Cinchonæ lb. i.

Sodæ Sulphat. $\frac{3}{4}$ i. misce—ordered to take 2 oz. daily.

This patient remained several months in Bengal, quite free from any affection of the liver; and then embarked for Europe. He returned to Bengal in 1830, suffering from a large cancer of the left side of the face and orbit, of which he died on the 20th April 1831; and I had an opportunity of inspecting the body, nearly four years after the severe attack of hepatic disease. The liver was found of rather a darker color than natural, somewhat softened in its texture, and the section bled freely. The whole convex surface of its right lobe was adherent to the diaphragm, and the edge of the right, as well as a part of the left lobe, was adherent to the transverse portion of the colon. The gall-bladder was enlarged, and contained bile of a deep yellow color; the ducts were pervious. A false membrane, (the result of inflammation at a remote period,) covered the whole of the gall-bladder and capsule of Glisson, connecting them with the adjacent parts. The spleen was slightly enlarged, of a reddish-grey color, and somewhat indurated.

CASE XLVII.—A small but muscular man, of dark complexion, aged 24, who had been two years and a half in India; (during which he enjoyed good health, and followed active occupations in a mercantile house :) had, without evident cause, except constipation, an attack of fever on the 4th November,

1827; the prominent symptoms of which were headache and great anxiety, the tongue was exceedingly loaded with grey mucus. He was bled largely from the arm once, and leeches were repeatedly applied to the temples and nucha. Ten grains of calomel, with as much compound extract of colocynth, were taken every night, and infusion of senna with salts repeated every three hours in the forenoons, until free purging was produced daily. This treatment was pursued for four days, and the pyrexia gradually subsided; but a great degree of languor and anxiety remained, with a moist white tongue.

Six grains of blue pill, and as much extract of colocynth, were now given every night; and Epsom salts in the mornings:—the diet being restricted to tea, bread, and sago. At the end of a week, he was much better; the tongue was cleaner, and his appetite had returned, but he complained of extreme languor, anxiety, and restless nights; and had become exceedingly pale. For the purpose of avoiding inducements to attend to business, he was removed to a friend's house on the 15th of November; he was then directed to continue his medicines, and permitted to take more food, but no wine.

November 22nd.—I was again sent for, on account of slight pain at the centre of the left collar-bone and a swelling at the pit of the stomach. The patient had a tolerable appetite, and was free from fever; but still very pale, and weak. He had taken only a small quantity of meat, and no wine, since

I last saw him ; and had kept his bowels very free. On examination, I found the left lobe of the liver enlarged and painful on pressure : the swelling occupied the epigastrium, extending towards the left ; it was very prominent anteriorly, and must have extended through the whole left lobe of the liver, as it received a strong impulse from the action of the heart ; this pulsation was in fact the principal cause of my being again consulted, for there was no great pain when the swelling was not pressed. I was truly shocked on observing the extent and prominence of this tumor, which had arisen in the course of a few days, and though not previously evident externally, I had no doubt must have commenced insidiously during the fever, and probably at a very early stage, if not at its commencement. The cause of tardy convalescence, was now too evident.

The patient was told, that notwithstanding his paleness and sensations of debility, his system would still bear active treatment ; and that his only hope of recovery depended on most rigid adherence to such plan of depletion, and absence of food, as should leave the vascular system very empty, and at the same time excite the highest degree of avidity of the absorbents, to remove the enlargement of the liver. He was directed to remain on his couch, observing the utmost quiescence, avoiding conversation, or any thing that might in the slightest degree quicken the pulse. On going to stool, he was ordered to be raised by a servant, and the night-chair was placed near

the bed. Ten leeches were applied to the liver daily, and the bleeding allowed to continue. Twelve grains of calomel, with eight of compound extract of colocynth, were ordered every night : one drachm of compound powder of jalap every morning : and if he should not be freely purged four times by 2 P. M., a dose of compound infusion of senna with salts was ordered to be then taken. He was allowed a cup of tea night and morning, but no food, and no drink in large quantity ; only a table-spoonful of water every half hour, if thirsty.

This plan was followed daily till the 29th November, without the slightest effect on the tumefaction of the liver. Debility and paleness were extreme, and I doubt if he would have survived another application of leeches. A blister was now applied over the epigastrium, and kept open with savine cerate. The former medicines were continued daily. Leeches were omitted for the present ; and he was allowed 2 oz. of bread with his tea, night and morning.

December 3rd.—His strength is somewhat improved, and there is more firmness of pulse ; the tumor is unchanged in appearance. The blister was ordered to be kept discharging, by the savine dressing ; four leeches were applied to the blistered surface daily, just over the most prominent part of the tumor ; medicine and diet not altered.

Dec. 6th.—He has four free stools daily, and there is a decided decrease in the size of the tume-

faction of the liver ; the pain at the centre of the left clavicle has ceased ; he feels weaker since resuming the use of the leeches. His mouth is not affected by the large and repeated doses of calomel which he has taken. Former medicines ordered to be continued daily, as well as the leeches : and he is directed to rub 3 i. of camphorated mercurial ointment over the right side of the chest and belly, round the blistered part. With a view of affording more nourishment, without producing a redundancy of fluids, or much excitement in the system, a boiled egg, and some salt were allowed once a day, without any increase in the quantity of bread.

Dec. 11th.—The tumor has decreased much, and the patient is not weaker. His mouth is not affected. The ointment was ordered to be continued daily ; the leeches, and former medicines were omitted. The quantity of bread was increased, and a tea-cupful of soup allowed.

He was directed to take a tea-spoon full of Cheltenham salts, in half a tumbler of water, every morning, and two of the following pills at bed-time.

R. Scammon. Gummi-resinæ

Extract. Colocynth. Comp. aa 3 i.

Saponis Duri—Cambogiæ aa 3 ss.—misce, et divide in pil. No. xxx.—Capt. ii. omni nocte.

The remaining fulness at the epigastrium and towards the left side slowly decreased. The camphorated ointment was omitted on the 19th of December ; but the above pills, and salts were continued daily for six

weeks longer. This patient recovered perfect health, and is still in Bengal pursuing active occupations.

From the great degree of enlargement which took place at the left lobe of the liver, and the abrupt projection, anteriorly, of the central portion of the tumor, it appears probable that effusion, or secretion of fluid constituting the stage of transition between inflammation and abscess in parenchymatous structures, had taken place to a great extent in this case, before I saw the patient on the 22nd of November: though we have no proof that the tumor was caused by a secretion of pus. I have never seen a case that appeared to be so far advanced as this, which ultimately recovered. The youth of the patient, and his firm and resolute mind, which enabled him to undergo the extreme depletion, greatly aided the means employed to save his life. When I first saw the tumefaction at the epigastrium, and towards the left lobe of the liver, I did not think myself justified in giving his friends any hope that the progress of an abscess of the liver could be prevented. It is remarkable that all the mercury taken, caused no sign of salivation. This gentleman had occasion to take a few alterative doses of calomel, about three years after this illness; and his mouth became affected by taking two grains every night, for eight doses, although he took some saline purgative every morning.

An insidious attack of liver disease, very often shews itself at the conclusion of fevers in Bengal;

in the same manner as occurred in the above case, and an abscess is impending, before attention is called to the part principally affected, by urgent, and unequivocal symptoms. It is very probable that in many such cases, the hepatic affection though at first obscure, is coeval with the commencement of the fever, perhaps sometimes the cause of it. We should therefore, never rest satisfied, until we have ascertained the cause of imperfect convalescence after fevers; more especially when the tardy recovery is attended with anxiety, a white tongue, unusual frequency of the pulse, and languor.

CASE XLVIII.—A middle sized man, 51 years of age, of dark complexion, and rather lax fibre; had been 26 years in India, and during that period enjoyed almost uninterrupted good health, attending diligently to his business in an office. He met with severe domestic calamities in 1830, subsequently to which his appetite became somewhat impaired, and his bowels slow; but he did not relinquish business, or follow any medical treatment.

On the 2nd December, 1830, he felt sick soon after breakfast, and vomited. At the same time he was seized with a severe pain at the epigastrium, and on that account he took without advice, laudanum 3 ss. with twice as much aromatic spirit of ammonia in tepid water, and had his belly fomented. I saw him in about two hours after the vomiting, and found him languid and weak; there was much elastic tension at the epigastrium, extending general-

ly over the belly ; and he was suffering from anxiety. The pulse was 92, and rather full ; the tongue was moist, and but little loaded with white mucus.

On account of this patient's long residence in India, and recent afflictions which had somewhat preyed on his health, I was anxious if possible to avoid a debilitating plan of treatment ; therefore a purgative enema was ordered to be given, and repeated in an hour. He took 15 grains of calomel, with seven of compound extract of colocynth, and six hours afterwards a dose of infusion of senna and salts. These medicines procured four scanty stools, of a dark-brown color ; and the pills were repeated at bed-time.

On the 3rd December, he took two ounces of castor oil, which produced two stools ; one was copious and of dark-grey color, the other was scanty : before 10 o'clock in the forenoon, he was freely salivated. There was still a considerable degree of general uneasiness of the belly, with some elastic flatulent distention ; pressure between the umbilicus and right false ribs, caused pain that extended towards the right kidney. The pulse was 106, and attended with some morbid heat of skin. He was ordered to take

Extract. Colocynth. Comp.—Scammon. Gummi-resinæ aa gr. iv.

Cambogiæ gr. ii. in two pills, at bed-time.

Dec. 4th.—He passed a restless night, and had two free stools ; there is an increase of uneasiness in the

belly, and rather more pain on pressure. The heat of the skin is augmented, and the pulse is now 106; he complains much of nausea, and there is a distinct fulness in the region of the liver.

V. S. ad lb. ii.

He took Pulv. Jalap. Comp. 3 i. at 7 A. M., and Castor Oil $\frac{3}{4}$ i. at noon.

At 4 P. M. The blood taken in the morning was buffy, and he had two copious dark-brown stools. He was rather cooler; the pulse 94 and softer. The enlargement of the liver and morbid sensibility on pressure unabated.

Twenty leeches were applied over the region of the liver.

Pills repeated at bed-time, as last night.

Dec. 5th.—He was freely purged in the night, and had some sleep at intervals: is now free from pyrexia, and there is less anxiety; a deep seated pain remains under the three last right false ribs, much increased by pressure.

Sixteen leeches were ordered to be applied to the region of the liver; and he took a strong dose of Infusion of Senna with Salts. The pills were repeated at bed-time, as on the 3rd.

Dec. 6th.—He is free from pyrexia, and thinks he is better; but some pain remains in the region of the liver, when he stoops or leans forward; and slight enlargement of the liver can still be felt, but the belly is soft and flat; he perspires: the mouth is sore, and he has a frequent hickup.

Apply a blister over the region of the liver.

R. Extract. Colocynth. Comp.

Scammon. Gummi-resin. āā gr. vi.

Cambogiæ gr. ii. misce, fiant pil. ii.—to be repeated every night.

R. Pulv. Jalap. Comp. 3 ss. every morning.

Dec. 9th.—Freely purged, and he has no complaint except debility.

He was directed to take two pills, as prescribed on the 6th, every second night, for a week. He had no relapse.

This case, as well as Weager's, at page 274, shows how very requisite it is to use decisive measures, when acute hepatitis appears, even in aged persons who have been long resident in India. I am inclined to say, that instead of trusting to leeches, in the acute hepatitis of persons who have been several years in India, we had better first use the lancet freely, once or twice; for when the symptoms are strongly marked we very seldom see these patients recover from acute liver disease, without bleeding from the arm. If the great extent of general blood-letting sometimes necessary in the hepatitis of younger subjects, be not requisite in such aged persons, by reason of the changes produced slowly by an Indian climate on their constitutions; a much longer perseverance in low diet, and warm resinous purgatives, with blue pill, must be advised to restore a healthy state when the liver has gradually become diseased. Cases 56 and 57 prove how important it is both for old resi-

dents, and for those recently arrived, to adopt a proper system of treatment early, whenever the liver is inflamed : and to take advantage of every accessory aid afforded by spare diet, quiescence, and careful domestic management, as long as any symptom of hepatitis remains. I have no doubt that both the cases now alluded to, might have been cured by perseverance in a reasonable course of active treatment, at an early stage of the disease.

That acute diseases of the liver similar to what appeared in the foregoing examples, are very common in Bengal, may be proved by the fact, that four such cases as Green, Bruce, King, and Craggs, which are detailed in this chapter, besides several slighter inflammatory affections of the liver, were admitted into one division of the Hospital, in less than a month. And the proclivity to the severer descriptions of hepatic disease, in this part of India, will be evident, when I state that of the eight cases above detailed, four of the patients were persons of temperate habits and possessing ample means of obtaining all requisite comforts in living : two of them were old residents in India. Several of the cases in this chapter, will shew that those who have lived long in the country, are not exempt from such attacks of hepatic disease as are apt to terminate in abscess.

In the foregoing cases there appeared sufficient evidence that the liver was inflamed ; and in many of the patients there was a great degree of enlargement of that organ. The symptoms were distinct, and in

some of the patients the liver disease was certainly very far advanced towards suppuration, before they applied for medical treatment.

It is worthy of observation, that the greater number of cases of acute hepatitis, which occur in this part of India, are at their commencement either complicated with some other local disease, or with some disordered state of the constitution, which in many instances are the predominant sources of the patients' suffering, when they apply for medical advice ; but the existence of the more important disease is in general easily discovered, by a careful examination of the abdomen, and an inquiry into the nature and duration of all the previous symptoms. Fever, dysentery, diarrhoea, or vomiting being often the premonitory affections ; to which pain in the side or enlargement of the liver supervene at a period more or less remote. We sometimes meet with instances, in which the symptoms more directly referrible to the liver, are so obscure as to attract but little of the patient's attention during the whole course of the disease ; and these insidious cases of hepatitis are much more to be dreaded, than those which commence with distressing symptoms.

Although I have already so strenuously urged the necessity of employing depletion by blood-letting, and the other means of cure for acute hepatitis, *not according to absolute quantity, but in such manner and to such extent as to produce a sufficient effect on the disease* ; I may be excused for again repeating my

confidence in the benefit which may be derived from *complete quiescence*, and more particularly from the therapeutic effects of *extreme abstinence*, whereby we may not only diminish the quantity or bulk of the solids as well as the fluids of the body, but also promote absorption of the general enlargement of the liver, or of any partial affection of that organ, dependant on interstitial deposit, and the result of a high degree of inflammatory action. It is quite unreasonable to expect that the occasional use of any medicine shall cause the removal of an enlargement of the liver, while the patient is using so much food as shall maintain a state of plethora of the constitution.

I am quite certain that a large number of cases of hepatitis, may be cured after much effusion has taken place into the structure of the liver; and we have no reason to doubt that recently formed abscess of the liver, in patients otherwise of sound constitutions, may in like manner be removed by the due employment of depletion, and by promoting the activity of the absorbent system. The distinct and prominent intumescence, which occasionally exists, and after a time subsides, leaves us reason to believe that some stages of hepatic abscess, in persons of sound constitution, even where a considerable formation of pus has taken place, are sometimes cured by absorption. This opinion is farther confirmed, by the marks like cicatrices, which we see occasionally on the surface of the liver, in such unquestionable shape, that we

cannot help believing that small abscesses very near the surface of the liver, are frequently absorbed : the collapse and cohesion of the sides of their cavities, forming these marks. Equally unequivocal appearances of condensed fibrous structure, are occasionally met with, more deeply in the substance of the liver : and in those cases where reference to the successful treatment employed during former attacks of acute disease, is accessible ; we find that a *steady, active and prolonged antiphlogistic treatment* had been followed.

I fear that patients suffering from the advanced stage of acute disease of the liver, are sometimes lost, because we hope we have cured them, when the symptoms first subside ; but treatment ought to be persisted in much longer. We shall find no difficulty in acknowledging the degree of perseverance requisite in conducting the latter stages of the treatment, when we advert to the frequency with which relapses follow the premature use of stimulant diet, or any sort of animal food. Not only the more violent morbid affections, but the slighter cases also ought to be watched for a long time during convalescence, as there can be no doubt that the more urgent symptoms of hepatic inflammation may subside, long before the disease itself is completely removed, and the internal parts restored to a healthy condition. When the attack of hepatic inflammation is sudden, and accompanied by very acute symptoms, the utmost promptitude is requisite to arrest the pro-

gress of the disease, by adequate remedies. But steadiness and perseverance in the treatment, are so requisite, even in those cases which at their commencement appear to be slight; that when there is any doubt of the nature of the existing morbid condition, it is much better to clear out the bowels by an enema and a brisk purgative, and to leave the patient in a state of tranquillity, and without food for a few hours, that we may carefully examine the state of the liver when the intestines are empty, so as to ascertain as accurately as possible the nature and degree of the existing disease, and that the whole of the treatment may be conducted with precision. The evils likely to arise from a little delay in commencing the more active system of treatment, are of infinitely less importance than those which depend on the premature cessation of appropriate remedies.



ABSCESS OF THE LIVER.

We have not yet satisfactorily ascertained the exact series of organic changes which takes place, when inflammation of the liver terminates in suppuration; for when cases which we have reason to believe, have gone on to suppuration, have ultimately terminated in absorption, and life is preserved; the parts may be restored to a completely healthy state, so that post-mortem inspection at remote periods when

such persons die from other causes, affords no information of the condition which may have existed, during the progress of this disease. When, on the other hand, suppuration* in the liver terminates fatally, we see only the ultimate result of extensive destruction of organisation, combined with the appearances produced by protracted suffering, and general debility. However, the practice of a large hospital in India, in the course of many years,

* The most valuable statement, which I have met with, relative to abscess of the liver occurring in Europeans in India, is that drawn up by *W. Geddes, Esq.* and published in the 6th volume of the Transactions of the Medical and Physical Society of Calcutta. By that account it appears that the average strength of the Madras European Regiment, was then about 600 men, who with the exception of 153 had not been above two years in India, at the commencement of the period to which his report alludes. The patients admitted into Hospital under the denomination of hepatitis, in the course of 3 years and 10 months, amounted to 228 cases; in which number it may be presumed are included many persons admitted a second or third time with the same disease; of these 228 cases abscess formed in 16, and terminated fatally. Besides which, 12 other cases of hepatic abscess terminated fatally in the same period, the patients having been admitted into hospital for the treatment of other diseases, principally fevers and alvine fluxes. The deaths from all diseases, during the same period was 108, including 19 fatal cases of cholera. It would appear that in 18 of the fatal cases, some indications of hepatic disease, commenced before the individual was 2 years in India. Of the 28 deaths from abscess of the liver, 5 were among the 153 old soldiers; 9 did not exceed 20 years of age on arrival in India, and only one was 28 years old.

affords some examples where patients have died from fever, or dysentery, or from wounds and accidents, during the progress of incipient hepatic diseases, such as we have reason to believe, often lead to the formation of extensive abscesses, and on the post-mortem inspection of these subjects we occasionally find small portions of the liver in a softened state; and at those parts an infiltration of sero-purulent fluid into its parenchymatous structure. These appearances have been most frequently noticed near the surface of the liver; but similar changes occur to a greater extent in deep-seated parts, and there is no reason to doubt that they are the early changes produced by the disease which terminates in central abscess of enormous size; for the history of the origin and progress of the majority of the cases of abscess, prevents our supposing that every large abscess which is found on dissection, had once been a small abscess and gradually increased in magnitude. The condition of the structure of the liver in the vicinity of the greater number of these softened spots, where there was a considerable sero-purulent effusion, which I have had the opportunity of observing, serves to convince me that morbid vascularity* is the predominant and primeval change, not

* This opinion of the inflammatory character of the softening of parenchymatous structures, as well as of the brain and different parts of the nervous system; is supported by the researches of Lallemand, and various other pathologists.

only in the softened part, but in the contiguous portion of the liver, to a greater or less extent; and the post-mortem examination of a number of subjects who had died while suffering from hepatic abscess at various stages of the disease, affords ground for believing that in the greater number if not in the whole of these cases, the extent of softening and disorganisation of the parenchymatous structure of the liver, depends on the extent and intensity of vascular engorgement and inflammation; and on the degree to which those conditions may have been modified by a medical treatment, more or less prompt, precise, and active. Even in the ulterior stages of those cases of extensive abscess of the liver, where the progress of the disease has been rapid, and attended with painful oppression at the chest, we often find a high degree of inflammation and vascular engorgement in that part of the liver which surrounds the abscess. This pathological condition is of importance, in reference to the practice that may be advisable in the early stages of those cases of hepatic abscess which supervene suddenly on acute hepatitis. Hence we have reason to consider local plethora or vascular engorgement, and inflammation, from whatever causes excited, to be the ordinary precursors of interstitial deposit in the structure of the liver; and that this deposit or secretion of sero-purulent fluid from the vessels of the inflamed part, is frequently the preliminary, or incipient stage of abscess.

The symptoms which take place at the period when abscess supervenes on inflammation must be modified in some degree by the extent, and intensity of the disease, as well as by its situation; for we cannot suppose that the symptoms which attend the formation of an abscess not larger than a nutmeg, should be commensurate with the indications of disease that are often observed when extensive suppuration in the liver takes place suddenly. We know that small abscesses in soft and yielding parts, are attended with comparatively less pain than a corresponding extent of disease in the vicinity of membranous parts. These considerations will make us the less surprised to find that some degree of vagueness and uncertainty may exist, in the symptoms which denote that suppuration in the liver has actually taken place.

In most cases the usual phenomena of hepatitis continue after suppuration has commenced, and frequently some other symptoms are superadded to those which previously existed. Rigor is not a general attendant on the formation of abscess in the liver, and that symptom, was not observed in the majority of the cases which I have seen. When an extensive collection of matter has taken place in the liver, the pulse almost always rises above 100, and becomes softer and more readily accelerated by any exertion, or by change of posture from the recumbent to the erect position. In many patients, frequent cold perspirations are observed, attended with anxiety,

debility and a sunk countenance, in other cases profuse sweating occurs at night. Sometimes in emaciated subjects, the pyrexia assumes the character usually observed in pulmonary hectic. During the rainy season in the low and damp stations of Bengal proper, remittent fever occasionally occurs in patients who are suffering from hepatitis, and if the liver be much enlarged, and not speedily reduced by active treatment, these cases are very apt to terminate in abscess. Mercury employed in the treatment of hepatitis, does not very often cause ptyalism after suppuration has taken place: but if mercury be administered in such quantity as to produce salivation at an early stage of the disease, and sufficient depletion by blood letting be neglected, the progress of inflammation, and the formation of abscess in the liver, are not certain of being arrested, and the existence of free ptyalism does not afford sufficient ground for assuring a patient that abscess of the liver cannot supervene.

These are the more common constitutional symptoms of hepatic abscess; the local indications of existing suppuration, are, very often an increased tumefaction of the liver, the patient suffers more from oppression at the chest and anxiety, and in those cases where the liver is so large as to protrude beyond the margins of the ribs, and the abscess is seated anteriorly, a more or less circumscribed projection takes place, as the disease advances. If the abscess be situated at the concave surface near

the stomach, vomiting often occurs, but this symptom is not a very unfrequent attendant on abscess of the liver seated remotely from the stomach.

Severe pain is not generally observed in cases of suppuration in the liver in Bengal, and the central abscess is sometimes actually formed, without so much pain as to excite the alarm of the patient : in other instances pain is hardly acknowledged till the abscess has made its way to the surface, and to the membranous covering of the liver. These cases prove the skill of the practitioner, more than the sudden attacks of acute inflammation, with severe pain. I am particularly anxious to call attention to the fact, that insidious disease of the liver occasionally occurs, and goes on to suppuration, attended with but few indications to warn us of the patient's danger : but I believe there always are symptoms, which though obscure, are in general sufficient to point out the nature of the disease. The continuance of slow fever, with protracted diarrhoea, and tension of the recti-abdominis muscles, should make us very vigilant in our observations and careful in the treatment which we order, as we know that liver-abscess frequently runs its course in Bengal, without active pyrexia, and with but little pain in the part affected ; and sometimes without any palpable enlargement of the liver. Those persons in whom abscess in the liver proceeds in this way, lose their health in a very gradual manner, becoming emaciated, and having returns of fever for a few days, once in two or three weeks ; they then suffer

from slight pyrexia almost every day, attended with more or less of diarrhœa, and followed after some weeks by hectic fever, and quick pulse. The muscles of the abdomen in these cases, are usually somewhat tense, especially the right rectus; the belly is frequently not tumid, and a careful examination detects only a trivial enlargement of the liver.



TREATMENT.

When abscess has actually formed in the liver, we must be guided in our treatment, by the symptoms of any local inflammation which may remain, and by observing the state of the patient's constitution. In many cases, where suppuration has taken place after a short illness, and where the patient's strength is not much impaired, more especially if there be symptoms indicating any remains of inflammatory affection, a degree of which, as I have already stated, often remains after purulent matter has formed; the best plan of treatment will be that advised in this chapter for the removal of inflammation, and the promotion of the absorption of any effusion that may have taken place. The objects to be kept in view in such cases of incipient abscess, being the same as have been pointed out as advisable in the worst and most advanced stages of inflammation attended with interstitial deposit. Small as the hope of cure may be, from the process of absorption of an incipient abscess of the liver,

I consider the probability of recovery by the process of absorption, to be infinitely greater than any chance of recovery after the bursting of an hepatic abscess, even in the most favorable direction. The diet advisable for those patients who possess tolerable stamina must be of the most meagre description : bread and water in small quantity will be sufficient while any pyrexia exists. After every appearance of fever is subdued, tea, with a limited quantity of bread, not exceeding half a pound daily, and a cup of gruel once a day, will assuredly help us to cure more cases of incipient abscess of the liver, than any ample allowance of food. We are precluded from allowing any increase of food, in bad cases of hepatitis while the disease is tending to abscess ; we must adhere to the same rule when abscess is forming, and while any degree of pyrexia or of local inflammation exists.

When a person applies for treatment of an abscess already formed, and we find the patient emaciated and weak, suffering from hectic fever and profuse night sweats, the pulse rapid, and the mind fretful ; there could be no possible excuse for following an antiphlogistic treatment, and a very low system of diet ; in such cases we must support the strength by mild nutritious food, and endeavour to maintain cheerfulness of mind, by explaining the reasonable grounds for hoping that a favorable termination may possibly be the result. After the contents of the abscess have been evacuated either spontaneously, or by incision, it will be necessary to support the patient's strength by a mild

nutritious diet, and in some cases by bark and wine, as is done in extensive abscesses of other parts. Patients of bad habit of body, and especially those who may be suffering from a scorbutic diathesis, when they are attacked with hepatitis, are difficult subjects to manage, at any stage of the disease; and they are exceedingly unlikely to recover after abscess has formed.

When resolution cannot be accomplished, and extensive abscess of the liver has formed, many patients die before the abscess bursts. In other cases the matter makes for itself an opening by ulceration, either into some part of the intestinal canal; or through the diaphragm and lower part of the lung, into the bronchial tubes; or externally through the parietes of the abdomen; or at the lower part of the side of the chest. A small proportion of each of such cases terminates favorably, under a careful and discriminating medical treatment. It must however, be acknowledged, that the proportion of patients who recover, after the formation of an extensive abscess of the liver in India, is lamentably small.

When it becomes evident that absorption of an abscess cannot be accomplished, and that we must await the termination of the case by the opening of the abscess, whether spontaneously, or by the surgeon; the treatment of the case, either medical or dietetic, ought not then to be left to the caprice or vacillating judgment of the patient, subdued in body and mind, as is often the case, by the progress of

disease. We should strenuously advise that nothing be done which may increase inflammation or produce the formation of a large abscess instead of a small one;—that nothing be permitted which may still farther impair the patient's constitution. Mercurials and purgatives must be avoided, and a mild diet in small quantity should be allowed, so as to prevent the strength from sinking; but I doubt the propriety of endeavouring to produce anything like an approach to plethora, or in common language, to strengthen the patient; we must be satisfied to let him live. I also doubt the propriety, under these circumstances, of applying a few leeches every time there may be a slight accession of pain at the part affected. Such trivial employment of depletion cannot influence the result, after we have ceased to follow rigidly those antiphlogistic means which are calculated to promote absorption; and still, such occasional application of leeches may possibly prevent the formation of superficial adhesions, which are of much importance.

I have seen one case in which an abscess of the liver was opened by incision, and in which the patient recovered. In that case the opening was made near the epigastrium. The patient lived many years afterwards, and during the latter part of his life was not remarkable for temperate habits. On his death, which occurred from causes unconnected with liver affection; I opened the body, and found adhesions of the convex surface of the liver anteriorly,

and an extensive thick fibrous structure occupying a space at that part, of about three inches in extent, and nearly half an inch thick. The liver was rather small, of a lurid, brownish-red color, slightly mottled internally; the gall-bladder was small, and covered with a dense false membrane. Since the first edition of this work was published I have twice opened abscesses of the liver by incision, but the result was unsuccessful. Still I am of opinion that abscesses of the liver, which are so near the surface that fluctuation can be ascertained, and those in which there is any evident pointing of the abscess externally, ought to be opened more frequently, and at an earlier period of the disease, than is at present usually practised. When the abscess points laterally between the false ribs, if there be any œdema, or thickening of the integuments over the most prominent part of the abscess, it may be considered a sign that adhesion of the peritoneum, to the peritoneal coat of the liver, has taken place, and an incision may be made with the more confidence. But in general, when we have reason to doubt whether adhesions have formed, I should prefer following the practice of Dr. Graves, namely, that of making an incision down to the peritoneal coat of the liver, and filling the incision with lint; this will assuredly be followed by the adhesions required, and it may also solicit the advance of the abscess towards the part where the incision is made in the parietes of the abdomen. When patients would not permit the abscess

to be opened by incision, I have in many instances applied the Potassa Fusa to the most prominent part of the tumor, but do not consider that any benefit has been derived from attempts to open the abscesses in this way. On inspecting the bodies of these subjects afterwards, adhesions of the peritoneal coat of the liver, to the parietes of the abdomen, have very rarely been found.

CASE XLIX.—Mr. J. M. aged 42 ; a strong man, of light complexion, but now somewhat emaciated, (who had resided eight years, in various parts of India,) came under my care on the 19th October, 1830. He stated, that his bowels had been disordered ever since the beginning of the month, with frequent calls to stool ; the evacuations scanty, and though loose, were voided with some difficulty, as if more fæces remained : they were sometimes dark, and at other times of a rhubarb color. For the five days before he sent for me, the stools had been gradually becoming more frequent, and attended with tenesmus : and he was so much distressed by frequent calls to stool, on the previous evening, that he took 30 drops of laudanum without advice ; but he had passed a miserable night, having been obliged to rise above 30 times to stool, and he voided scanty, reddish, orange-colored evacuations, mixed with slime. He had a flushed face, and hot dry skin. Pulse 102, and full : the tongue was much loaded with moist, grey mucus. The belly was rather retracted, whereby an enlargement of the liver was easily

perceptible, and pressure at that part gave pain ; but there was some morbid sensibility on pressing over any part of the abdomen.

I saw him first at 8 A. M., and took lb. iiss. of blood from the arm, immediately, and prescribed

Calomel.—Extract. Colocynth. Comp. āā ÷ ss. in pills, followed in four hours by Pulv. Jalap. Comp. ʒ i.

On visiting at 4 P. M., the pyrexia was very little abated, the urgent calls to stool nothing easier : the blood exceedingly buffy and cupped.

V. S. repeated to lb. ii.

Twenty leeches were applied over the tumor of the liver, and the Calomel and Colocynth pills repeated.

October 20th.—He is very little easier, the enlargement of the liver has not abated, the evacuations are more copious, but of a reddish color, like a paste of flour and water tinged with rhubarb ; pulse still 102, but much subdued in force : the skin is dry and hot ; the tongue loaded with grey mucus : he feels much exhausted.

Apply 30 leeches over the tumor of the liver.

R. Infus. Sennæ Comp. ʒ ii.

Magnesiæ Sulphatis

Sodæ Sulphatis āā ʒ ii. misce—to be taken at 6 A. M., and repeated at noon.

Vesper.—He suffers less pain, and goes less frequently to stool ; the evacuations are still scanty, and of the same color, mixed with some mucus. The enlargement of the liver is not reduced ; pulse 104, and rather more full : he feels very weak ; his skin is hot, but perspiring, and the mouth is sore.

Apply 12 leeches to the region of the liver.

R. Extract. Colocynth. Comp. \mathfrak{D} ss.

Pil. Hydrarg. gr. v.—in three pills at bed-time.

Oct. 21st.—He has had many ineffectual calls to stool during the night, and there is at present extreme anxiety; he feels exceedingly weak, and is perspiring, but the skin remains hot; pulse 106: his firmness of mind begins to fail, and he is with difficulty persuaded to go on with medicine.

R. Extract. Colocynth. Comp. \mathfrak{D} ss.

Pil. Hydrarg. gr. v.—in three pills, at 6 A. M., and repeat at night.

Oct. 22nd.—The stools have been more copious since midnight, and contain above a pint of pus, mixed with some florid blood; the swelling at the right hypochondrium has decreased. He is much lower, and weaker, and cannot rise to stool; the pulse is soft and feeble. The morbid heat of the skin has subsided in great measure: there is a circumscribed hectic flush in the cheeks.

R. Pil. Hydrarg.—Pulv. Ipecacuanhæ—

Extract. Gentian.—Extract. Colocynth. Comp. āā gr. iii. misce et divide in pil. ii.—Capt. hujusmodi pil. ii. sexta quaque hora.

Oct. 23rd.—The first stool after daylight this morning contained above six ounces of white, thick, slimy pus; he had not above ten evacuations during the day and night, they are of the same reddish color, as formerly, but very little tinged with blood; and some pus is seen in almost every stool. The whole of the matter voided during the last 24 hours, is

computed at 17 ounces, there is less heat of the skin, and his thirst is abated; he is weak, fretful, and desponding.

Pills repeated every six hours, as yesterday.

Oct. 24th.—The liver is softer and less tumid, otherwise there is not much change since yesterday; the pills produced nausea, and he does not appear to have derived much benefit from them: he voided about eight ounces of pus, a little tinged with blood, in the last 24 hours. There is still a hectic flush in the cheeks. Medicine omitted.

Oct. 26th.—The tongue is cleaner, and the tumefaction of the liver is hardly perceptible; his countenance is sunk, and there is a slight flush in the cheeks. Pulse 85, and soft; he perspires very freely. He has had five stools in the last 24 hours, and passed only one and a half ounce of grey feculence, and not less than ten ounces of pus, in two of the stools; the pus was much tinged with blood. He has only taken tea, thin gruel, and toast-water, up to this day; but he now feels hungry, and desires to eat bread and milk, which is permitted.

R. Infus. Gentian. Comp.

— Sennæ Comp. āā ʒ ii.

Magnesiæ Sulphatis ʒ vi.

Acid. Sulph. Aromat. gtt. xx.

Quininæ Sulphatis gr. iv. misce—half to be taken at 6 A. M., the rest to-morrow.

Oct. 28th.—He is much better, but very weak, and still has a slight flush of the cheek; he has had

six stools, of dark-grey color, and has passed some pus with almost every stool.

Medicine continued daily, as above.

Nov. 8th.—The discharge of pus ceased yesterday ; he has had four rather scanty stools, of dark-brown color, and of the consistence of paste.

To take two oz. of the mixture, as above, every morning.

R. Pil. Hydrarg.—Extract. Colocynth. Comp. āā gr. v. every night at bed-time.

This medicine was continued for a week. The patient gradually recovered, and remains well.

CASE L.—John Goddard, a delicate and pale lad, of light complexion, aged 18 ; arrived from England in 1827. He had occasionally voided portions of tape-worm with his stools, for above a year. About the middle of September he first experienced pain at the upper part of his belly, which was ascribed to his old complaint, and he took a strong dose of calomel and jalap, which he stated, had the effect of expelling a large quantity of the tape-worm, in separate pieces. A second dose of the same sort, and then a dose of oil of turpentine, were afterwards taken, but no more portions of the worm were observed. After this his bowels became very costive, and he experienced a dull heavy pain at the right side, which he supposed depended either on some remains of the worms, or on constipation ; therefore he was satisfied with taking such aperient medicines as served to affect the bowels : and he remained without any proper treatment for the affection of the liver until the 21st October,

1827, when I was requested to see him. He was then pale, weak, and emaciated, prone to constipation, and subject to occasional cold perspirations: the tongue white and moist; pulse 88, and soft. On examination, the liver was found much enlarged, pressure over the right hypochondrium caused pain; and he complained of rheumatism in the right shoulder: according to his account, this was at least 22 days from the time he first noticed pain in the right side.

Sixteen leeches were ordered, over the region of the liver, every morning.

Pulv. Jalap. Comp. 3 i. to be taken at daylight.

Extract. Colocynth. Comp. gr. v.—Calomel. ʒ ss.

———Hyoscyami gr. iv. in pills, every night.

On the 24th of October, he became very faint when the leeches were removed, therefore only 10 were applied daily, afterwards; and the former medicine was continued, by which, five or six free stools were produced daily.

Oct. 27th.—The mouth is sore, but there is no material amendment in his condition; and he is not much weakened by the treatment, which was ordered to be continued; but only six leeches applied to the epigastrium daily.

Oct. 29th.—Œdema of the feet and scrotum has commenced; the pulse 108, soft, and weak; the enlargement of the liver is more prominent at the epigastrium, and the cartilages of the right false ribs are less raised up. A blister was applied to the

epigastrium, and ordered to be kept open. His former medicine was omitted, and he took Pulv. Rhei—Sal. Polychrest. āā ʒ ss. every morning. The diet had been previously restricted to tea, bread, and sago, but he was now directed to take a tea-cupful of milk, boiled, and thickened with a little flour, night and morning; and half a pint of soup at noon; and he was desired to remain very quiet. It was evident that a large abscess had formed in the liver, and his case was viewed with despair. His bowels were moved always once freely, and two or three times more scantily, every day by the medicine.

Nov. 14th.—He remained with very little alteration till this morning, when he awoke with a sense of great faintness and nausea; attended with thirst, flushed face, sense of flatulent distention of the belly, and frequent desire to go to stool; but he passed only a little reddish slime, until half past 10 o'clock, A. M., when he had a free evacuation, which was found to consist of blood and pus, the whole supposed to be near lb. iss. After this he suffered much from faintness all day; he also had a slight palpitation at the heart, and perspired much. The tumor at the epigastrium had subsided considerably. The blister was allowed to heal; the powders of rhubarb and sal-polychrest were omitted, and he was ordered to take

Extract. Colocynth. Comp.—

——Hyoscyami

Pill. Hydrarg. āā gr. iv. every night at bed-time.

Nov. 18th.—He is very pale and weak; there is rather more tension at the epigastrium than usual, with flatulence and nausea. The quantity of pus in the evacuations yesterday did not exceed five ounces, and this morning there is only a scanty, loose, grey evacuation, with a little slime.

Vesper.—There has been a copious evacuation of pus, tinged with blood since noon, and the tension at the epigastrium is diminished; he seems much weaker. The pills were ordered to be continued every night.

R. Pulv. Rhei—Pulv. Calumbæ aa ʒ ss. in

Aquæ Cinnamomi ʒ i. every morning.

Nov. 27th.—The œdema of the feet and scrotum has subsided, and his health is improved. The quantity of pus in the stools gradually decreased, and for the last two days has ceased altogether. He is pale and weak; but not very much emaciated. There is still some hardness at the epigastrium, and towards the right side, but no prominent swelling, as there was before the abscess burst: pressure over the part hardly causes any uneasiness; his mind is tranquil, and the appetite tolerable; he has always had two or three stools daily. Medicines continued.

Nov. 30th.—Health slowly improving. He embarked for Europe this day.

A memorandum of the appearances observed on the post-mortem inspection of the following case, may be worthy of notice, as an instance of the early stage of that condition which terminates in abscess.

CASE LI.—W. Green, Æt. 38 ; of dark complexion, a tall and large sailor, of the ship *Moir*, recently arrived from England ; was sent to Hospital on the 30th May, 1830, in the evening. He had been laboring under dysentery of the severest description for 14 days. The belly was flat, inelastic, and tender if pressed ; the patient much reduced, and pyrexia moderate. Pulse varying daily from 96 to 116. He died in 52 hours after admission.

On Dissection—The liver was found slightly enlarged, of rather pale color, its texture soft and unctuous. An ash-colored tumor, half the size of a walnut, was observed imbedded in the substance of the liver, near the ligamentum latum hepatis : on cutting across this tumor a tea-spoonful of very thin subalbid fluid was found in its centre ; and the sides of the cavity in which the matter was contained, were of a pale-grey color, and much softened to the extent of half an inch. The colon was thickened, somewhat contracted, and its interior covered with numerous large, grey ulcers, with elevated rough surfaces.

CASE LII.—Charles Ambrose Craggs, Æt. 17 ; a sailor of the ship *Sir Thomas Munro*, a delicate lad, of light complexion, one month arrived from England : has lived on board ship. Had been ill 14 days, with a very distressing purging, before he was sent to Hospital ; and had taken no medicine, although he had as many as 20 stools per day, mixed with blood. He was admitted into the General

Hospital on the evening of the 24th June, 1830; complaining solely of the dysenteric symptoms: but on examination, a slight degree of fulness across the epigastrium was evident, sufficient to afford room for the greatest apprehension of advanced hepatic disease; there was very little pyrexia, pulse above 100. He was bled to lb. iss. and 16 leeches were applied to the scrobiculus cordis, the same night: ten grains of calomel with four grains of compound extract of colocynth, and as much extract of hyoscyamus were given at bed-time; and an ounce of castor oil, next morning.

June 25th.—The blood taken last evening, is florid and not buffy, he was almost all night on the close-stool; the evacuations about $2\frac{1}{2}$ pints, of a dark-green fluid: pulse 102; the tongue is rather dry, and little furred; the muscles of the belly are tense. Sixteen leeches were applied, and as many the next day, which caused him to be very low, and faint; and he was covered with a profuse cold perspiration. A blister was now applied to the region of the liver, and a smaller number of leeches round its edges. The enlargement of the liver appeared reduced by these means, the tumefaction varying a little from day to day, sometimes hardly perceptible; but the muscles of the belly remained tense. He became weak, languid, fretful, and desponding: the stools frequent and watery, sometimes tinged with blood, often nearly black. He sank, and died on the 13th of July.

On post-mortem inspection ; the subject was much emaciated, and some fulness of the right hypochondrium extending across towards the left side was evident externally.

The lower portion of the right lung was of a morbid red color, and adherent to the diaphragm. The liver was enlarged, the convex surface of its right lobe slightly adherent to the diaphragm ; on separating which adhesion, a large abscess containing nearly two pints, was opened ; most of its contents were puriform, the rest a brownish serum. The left lobe was adherent to the stomach, and there was an abscess in this part, containing five ounces of glutinous, brown, thick fluid ; the sides of the cavity were in a sloughing state. The gall-bladder was of pale color, much shrunk, and flaccid, it contained about 3 iss. of opaque, orange-colored, oily fluid. There were numerous small ulcerations over the mucous membrane of the colon ; the internal coat of the rectum exhibited morbid vascularity, thickening, and slight appearances of abrasion.

Although the frequent calls to stool, were almost the only symptom of which this patient complained, there never was any great quantity of blood or slime voided after he came to Hospital ; on many days, little or none of either. There was no rigor at any period of the disease ; but the local enlargement, tension of the muscles of the belly, rapid pulse, and irritation of the bowels left no room to doubt what sort of disorganisation was in progress. I know

not if suppuration of the liver, *with sloughing of the sides of the abscess*, be capable of recovery. This poor lad had not discretion, and resolution to submit to that system of abstemious diet; with the aid of which, only, we can expect that the best directed treatment, may sometimes effect the removal of incipient abscess of the liver: his ingenuity was exerted in procuring an undue quantity of food, and the undigested remains of prohibited articles were observed in his stools. Those who are disposed to ascribe tropical dysentery, chiefly to a disordered state of the bile; and who assert that the dark or black color of the alvine evacuations is generally caused by cystic bile; should compare the color of the stools during this lad's disease, with the appearance of the gall-bladder, and its contents as observed on dissection.

The following is one of those rare instances which I have met with, wherein the pulse was for several days below 90, though an abscess had formed in the liver.

CASE LIII.—H. King, *Æt.* 24; a sailor, two years in India: had ague in China in 1829, and afterwards enjoyed good health, until his return to Calcutta in 1830. He had then an attack of continued fever, and was treated in the General Hospital from the 23rd of April to the 13th of May: he was bled from the arm, had leeches to the head, and was purged freely. He had been convalescent 17 days before leaving Hospital; but unfortunately

instead of joining a ship, he went and lived at a punch-house for 32 days, during the last four of which, he stated that he had been exceedingly ill with pain in the belly, and round the loins. On this second admission into Hospital on the 14th June, he had slight pyrexia, an enlarged liver, and pulse at 112. He was treated with repeated V. S., leeches, and the usual course of calomel, and purgatives; and subsequently blisters were applied. He became weak and fretful, the liver remaining large; and he died on the 25th June. From the 16th to 21st June, the pulse as he rested in bed, never exceeded 86, except on the evening of the 19th, when it was 110, and on the evening of 20th, 92. He never had any rigor, or any dysenteric symptoms.

On post-mortem inspection, the subject was found emaciated, and the right side tumid. The right lung was adherent to the upper surface of the diaphragm. The liver was much enlarged, and the convex portion of its right lobe adhered to the diaphragm; on separating this attachment, a large abscess was opened, which extended to the centre of the liver. The gall-bladder was contracted, and flaccid, covered with a false membrane, and its base adherent to the contiguous part of the colon.

CASE LIV.—G. N——, a stout, tall, and muscular seafaring man, of light complexion, 27 years of age: arrived in India in December, 1827, after a very long voyage from Europe; and lived temper-

ately on board ship, in the river. He was taken ill on the 23rd January, 1828, with ardent fever, attended with anxiety, and tension and fulness at the epigastrium: he also suffered from pain over the whole right side of the chest, and belly. He was freely purged, and bled four times in the first four days. On the 5th day he had no treatment, but a scruple dose of calomel with two grains of opium at bed-time; a purge was given next morning, and 30 leeches were applied. By these means the pain in the right side was moderated, but not removed: the pulse remained full, the skin dry, and the tongue was much loaded with white mucus. An attempt was now made to salivate the patient, by six or eight grains of calomel, every six hours. This was repeated daily, on 29th, 30th, and 31st, without benefit; some pyrexia, and a dry hot skin continuing. On the 1st of February the same symptoms remained; the pain in the side was severe, and increased by respiration; 30 leeches were then applied to the side, and the small doses of calomel were repeated, but without effect. On the 2nd of February, the pain and pyrexia were unabated, and a blister was applied;—various palliatives were used from this date till I was first called to visit this patient on the 10th of February. He was then suffering from a troublesome cough, with copious puriform expectoration, of a yellow bilious color, and bitter taste. He gradually sank under this sort of hepatic cough, with bilious expectoration, and died on the 28th of February.

On dissection, an enormous abscess of the right lobe of the liver, was found to have opened through the diaphragm into the right lung. Part of the right lung was adherent to the upper surface of the diaphragm, and in a state of induration, and suppuration. The early history and treatment of this case, were put into my hands, by the medical man who requested me to see the patient with him; and he concurred with me, in considering it a good example of the inutility of even copious V. S., in a severe case of hepatitis; *unless we persist in the blood-letting at short intervals, with corresponding accessory treatment of every sort, until the symptoms of inflammation are entirely subdued.* This patient was lost from the moment that daily blood-letting, and active purging were omitted. The long intervals between each bleeding from the arm, in the first four days of the treatment; the neglect of V. S. on the five last days of January, while acute symptoms remained; the attempt to mercurialise the system, by small doses of calomel; and the application of a blister on the 2nd of February, while pyrexia and acute symptoms still existed in a severe degree; were all injudicious.

The obstacles to the accurate and satisfactory treatment of acute hepatitis, and of dysentery, on board merchant ships in the river Hooghly, during the cold season, are almost insuperable.

The danger of deviating in any way from appropriate diet, during the progress and treatment of acute hepatitis, need not be better ex-

emplified, than in the following case. The patient, though tolerably submissive to medical treatment in other points, was totally intractable on the subject of diet.

CASE LV.—D. Dominique, *Æt.* 44, a stout French sailor, of dark complexion ; a hard-working man, of regular habits, and good conduct ; recently arrived from France, and had been living on board ship ; when he was taken ill on the 27th of November, 1830. The surgeon stated his complaints to have been at first Fever, and then in succession Gastro-Enteritis, and Hepatitis ; for which he had been treated on board ship until the 4th of December. In that interval the patient had 40 leeches applied to the belly, and was bled from the arm to *eight ounces !!!* he also used purgatives. On arrival at the Hospital, on the forenoon of the 4th of December, he appeared exceedingly exhausted and fatigued by the removal, and he was very pale : his pulse was rather weak, the tongue was white, belly tense, liver very hard, and he had a troublesome cough. The bowels were costive.

He was washed with hot water, while he remained in the recumbent position ; and had an enema. In the course of the day he took \mathfrak{a} i. of calomel, with \mathfrak{a} ss. of compound extract of colocynth ; followed by one drachm of compound powder of jalap : which produced only two stools. After a few hours rest, his pulse had risen slightly, and though there was but little morbid heat, it was considered requisite to

take 20 ounces of blood from the arm, and he had Calomel.—Extract. Colocynth. Comp.

Pulv. Scammon. Comp. āā ÷ ss.—which were given in Syrup, as he refused to take any more pills.

Dec. 5th.—He was purged freely, and felt better; the cough was moderated; the belly was generally softer, but the right lobe of the liver was hard, large, and tender if pressed. Pulse soft, and natural.

R. Calomel.—Extract. Colocynth. Comp. āā ÷ ss. at 7 A. M.

Repet. V. S. ad $\frac{3}{4}$ xxii.—in the morning.

Apply 12 leeches to the region of the liver, at noon.

At 4 P. M.—He had only one scanty and very light-colored stool, after which he was seized with spasms in the belly, and some symptoms of Cholera, attended with great anxiety, a soft pulse, and the tongue was cool. He was ordered Calomel. ÷ i. Opii gr. ii. after which he became easy, and slept well all night; the leech bites were bleeding freely next morning: the patient's tongue was warm, moist, and white; there was no pyrexia, and the apprehension of Cholera had subsided. Leeches were applied to the belly daily for a week: and active purgatives with calomel, were taken every day.

Dec. 13th.—The belly had become less tumid, and softer; the tumor of the liver more distinct and circumscribed; the mouth was sore, and he felt weaker. The pain of the right side was subdued; (at least he did not acknowledge any pain on pressure,) the enlargement of the liver remained, but

it was softer. After this a blister was applied to the right side, which was kept discharging by the savine cerate ; a small number of leeches was applied daily to its surface : and liniment. hydrarg. was rubbed over the side of the belly and chest, where the blister had not reached.

The patient now became low-spirited, and said he was determined not to die of debility, and that unless unrestricted quantity of food were allowed, he had resolved to procure it. In this he was as good as his word, for by the aid of his messmates and others he was well fed, and had no wish to conceal that fact. The first unfavourable symptom which arose from improper diet, was a return of cough ; then gradually increasing emaciation, and a sharpness of visage ; followed by dysenteric symptoms, with blood in the stools. He lost all hope, and refused to take any remedies : the evacuations assumed the appearance of dark-brown water, mixed with blood, and had a putrid odor ; he was unable to rise to stool. Still the pulse did not exceed 86 when he was in the recumbent posture. He died on the 8th of January, 1831.

Dissection, nine hours after death.—Subject emaciated ; universal adhesions of the right lung, apparently not recent. The liver was much enlarged, and of a pale, drab-color, its structure was indurated ; the convex surface of the right lobe was extensively adherent at the space between the 7th and 8th ribs : and at that part contained a large abscess, very near

the surface ; the margin of the right lobe adhered to the colon. There were numerous small ulcers in the colon and rectum. The mesenteric glands were enlarged ; and the cellular texture at the root of the mesentery was consolidated.

It is not common to find abscess of the liver, as in this case, combined with the pale degeneration.

Up to the 13th of December, there appeared room to hope that the disease might have been cured, by persistence in a correct treatment, so as to promote absorption.

CASE LVI.—On the 9th of October, 1829, Hollman came to me for a prescription ; in consequence of a “cold and head-ache,” with which he had been suffering for six days. He said his illness was caused by getting his feet wet. He was rather a spare subject, of middle size, and light complexion, 37 years of age ; he had resided 18 years in India. He led a sober active life, as superintendent of a place that was not laborious, but which required his being out early in the mornings, and he frequently got his feet wet, in the dew on the grass.

He had taken two doses of salts, and bathed his feet in hot water at bed-time, for several nights, with no benefit, before he came to me : he had then no pain, except in the forehead, and but little pyrexia ; there was much elastic tension, and general fulness at the epigastrium, but he had no pain at that part on pressure, and there was no pain in the right shoulder. The tongue was moist, and

loaded with yellowish mucus; pulse 92 and soft; skin always dry, the urine very high-colored, and he usually had some exacerbation of fever in the evenings. He refused to be bled from the arm, therefore 30 leeches were ordered to the liver, and to be repeated next morning. Ten grains of calomel, with four of extract of hyoscyamus, and as much compound extract of colocynth, were ordered at bed-time every night; and a brisk cathartic of senna and salts in the mornings. I saw nothing more of him for some days; he afterwards told me the medicine was taken twice, and he only applied 20 leeches once; which were put to the temples, as he asserted he had no fear of liver disease, and felt no pain in the side. At the end of two days, he went out, and attended to his business; feeling as he said, only the remains of his cold. On the 16th of October, he had a return of fever, preceded by much chilliness, but no rigor: pulse 92, and rather hard. He had frequent calls to stool, the evacuations were scanty, and of a dark color: there was now an exacerbation of fever every evening, but he was never entirely free from pyrexia. The elastic tension at the epigastrium was rather increased; and he felt some difficulty of breathing. Thirty-six leeches were now applied to the epigastrium. He had ss of calomel at bed-time, and a purgative of compound powder of jalap next morning; which operated freely, but the pyrexia continued, and his tongue was loaded with a thick, moist,

white mucus. On the 17th October, thirty more leeches were applied to the right side, and he had ʒ i. of calomel, with extract of hyoscyamus and colocynth, each four grains, at bed-time.

Oct. 18th.—The exacerbation of fever last evening, was rather less than before; but he had a very restless night. There is some pyrexia this morning, with a loaded, moist tongue, high-colored urine, cough, and anxiety; he is obliged to rest with his head and shoulders much raised, and is troubled with flatulent eructations; the elastic tension across the epigastrium continues; but he says pressure over the liver gives no pain. Pulse 96, and weaker.

Apply Twenty leeches to the epigastrium.

R. Pulv. Jalap. Comp. ʒ i.

— Scammon. Comp. (Ph. Ed.) ʒ i.

Aquæ Font. ʒ iss. misce. To be taken at 7 A. M.

Olei Ricini ʒ i. at noon.

Repeat the Calomel, Colocynth, and Hyoscyamus, at bed-time as last night.

Oct. 19th.—There is no material change, and he does not appear much weaker; the tongue is cleaner; pulse 104, and rather fuller since the leeches were applied yesterday.

He has been freely purged; and the stools are of a dark-grey color.

Apply twelve leeches to the epigastrium.

All medicine of yesterday repeated.

Oct. 20th.—He is not much better; pulse 104, and weaker; the fever is not very ardent, and the

evening exacerbation is less distinct. He has been frequently purged, the evacuations are a dark-brown water, and copious. The sense of flatulence, and the tension across the epigastrium continue; he asserts that he has no pain. The mouth is affected by mercury, so that the gums are very painful and red, but there is no free ptyalism.

R. Pil. Hydrarg.

Extract. Colocynth. Comp. āā gr. vi.

—— Hyoscyami gr. iii. ft. pil. ii.—Two pills at bed-time.

Oct. 21st.—He has had four stools, which are watery and dark-colored; there is no material change in other respects. Repeat the above pills, twice a day.

Oct. 22nd.—He is more purged, but the stools are of the same sort; his mouth is more painful. Pills repeated as yesterday.

Oct. 23rd.—There is some increase of pyrexia, and dryness of the skin since last night; he is pale, and very weak; the stools continue as above; pulse 112, and rather fuller; the other symptoms have not abated.

Apply ten leeches to the epigastrium.

R. Calomel. ʒ i.—Antimon. Tart. gr. ii.—Cretæ Præparat. 3 ss.—Sacchari.—Pulv. Gum. Acaciæ āā 3 i. misce, et divide in chart. x. One powder every three hours.

Pulv. Jalap. Comp. 3 i. early to-morrow.

Oct. 25th.—He was freely purged, and feels weaker; the powders were repeated yesterday, every

three hours; a slight degree of morbid heat, with dryness of the skin continues.

R. Extract. Colocynth. Comp.—Pil. Hydrarg. āā gr. v.
Pulv. Jacobi gr. iii. misce, fiant Pil. iii.—M. et v.
quotidie repetendæ.

Oct. 28th.—No alteration, except that he is too much purged, and the mouth sorer; some pyrexia remains; pulse 120. Medicine omitted.

Oct. 31st.—No material change, except a slight increase of evening pyrexia; pulse 116. He had six scanty, watery, dark-brown stools, in the last 24 hours; his mouth is still severely affected by the mercury; he says he has no pain; the tension across the epigastrium is rather increased.

Apply a Blister to the epigastrium.

R. Magnesiae Sulphatis 3 ii.

Magnesiae 3 i.—Aq. Menth. Pip. 3 iss. misce.

To be taken at 7 A. M., and repeated at noon.

November 1st.—The stools are watery, and of darker color: his tongue is loaded in the centre with brownish mucus, its edges are a morbid red. Repeat the medicine as yesterday.

Nov. 2nd.—Purging of the same dark, watery fluid, more troublesome; he persists in saying that he has no pain. The tension at the epigastrium unabated.

R. Extract. Colocynth. Comp.—Pil. Hydrarg. āā gr. vi.
Extract. Hyoscyami gr. iv.—misce, fiant pil. ii. H. s.
Magnesia and Epsom Salts as before, in the morning.

The pyrexia remained in a slight degree, with a brownish tongue, which was dry in the centre, but

moist and red at the edges ; he gradually became weaker, and died on the 12th of November, 1830.

On dissection, the liver was found enlarged, its convex surface covered with a thick coat of coagulable lymph, and it contained two large, deep-seated abscesses ; the left lobe adhered to the stomach, and the right lobe to the colon. There were numerous small circular ulcers in the colon.

This patient was a man of sober habits, and excellent conduct ; his life was lost from want of V. S. on the 9th of October, and on the two or three subsequent days. He had an idea that at his time of life, and after so many years residence in India, with abstemious* habits of living, he was not liable to

* Temperance in food and drink, is not certain of preventing the occurrence of hepatitis, and the formation of abscess of the liver in Europeans who are obliged to undergo much fatigue in the sun, and who are at the same time exposed to great diurnal changes of temperature. No person could be more temperate than *M. Victor Jacquemont*, who travelled over various parts of central and upper India in 1831, and 1832. He supposed that the extreme abstemiousness which he practised, would render him little liable to the diseases of this climate. Nevertheless, his health became impaired, soon after much exposure in March and April, to an ardent sun, (and perhaps to malaria) in the forests of Salsette ; he was subsequently affected with dysentery ; and afterwards he had irregular attacks of fever for 15 or 20 days, before he arrived at Bombay, on the 30th of October, 1832. These preliminary ailments, were followed by extensive suppuration in the liver, which resisted the most skilful employment of every remedy directed by *Dr. McLennan*, and his medical friends, Drs. Kemball and Henderson, who cordially granted their assistance in endeavouring to save a life so valuable

liver disease; therefore he would not at any time, submit to be bled: and after applying leeches once to his head, he attended to his daily business. He never acknowledged that he suffered any pain on pressure at the epigastrium; but it is hardly possible to believe that so much superficial inflammation at the convex surface of the liver, with fulness at the epigastrium, could have existed without some morbid sensibility on pressure. He was not an hospital patient.

to science. The disease proved fatal, in fifteen hours after the rupture of the abscess into the cavity of the peritoneum, on the 7th of December, 1832.

M. Jacquemont thus describes his frugal mode of living, and the exposure to which he was subject, in a letter which he addressed to me, from camp near Atrungabad, dated in May, 1832, "It is a long time since I have left the use of spirituous liquors, and lived abstemiously: since the hot winds commenced, I more strictly follow this system. Having tried, and with the utmost success, to discard animal food; I eat somewhat like the natives, the same dishes nearly, (if it be not a profanation of the word dish, to apply it to such greasy compositions as their curries,) but I take a much smaller quantity, as I have had always little appetite; now I am quite reconciled with my fare, and enjoy the results. I walk or ride 18 or 23 miles in the morning, the last 2 or 3 hours, exposed to the sun; write and read the whole day in the tent, or exposed to the wind under the shade of a mango tree, when the business I am engaged in requires a clear light; I walk a couple of miles in the evening, sleep little, and begin again next morning. Lately, between the Vyndhia and the Sohpora and Adjuntah ranges of hills, in the valleys of the Nerbuddah and Taptee, the temperature of the hot wind in the shade ranged from 106 to 111°. I did not find it unpleasant in a common tent pitched under a tree."

CASE LVII.—A medical man, 27 years of age, of dark complexion, and rather stout make ; arrived in Calcutta, in August 1827. He was habitually temperate in eating and drinking, but utterly careless of his health in every other respect. He had been used to field sports at home, and he tried the same amusements here, in the most imprudent manner; going out many miles before day-light, in the cold foggy mornings of November, and often riding and walking till near mid-day, when the sun was very hot: sometimes remaining in the fields half the day without food. He had several slight feverish attacks in the latter end of November, which were but indifferently moderated by saline purges. He continued his sporting excursions, and in the beginning of December, he had a return of feverish attacks, of increased severity; there was now constantly some slight pyrexia present, which however did not prevent his persisting in going out as usual: and he took some hot brandy and water at night, to check a troublesome purging, which had supervened to his previous complaints.

He applied to me for advice on the 14th of December, and gave the above history of his proceedings. There was then much fever, the pulse was 112 and full; his face was flushed; tongue loaded, brownish, and moist; urine high-colored. He was suffering from great anxiety, and pain under the right false ribs, that was increased by pressure: there was an evident enlargement of the liver. He had

at this time frequent stools, the evacuations scanty, feculent, and of dark orange-color, with a little slime.

He was immediately bled to lb. iiss. and took Calomel ϑ i. with two grains of Camboge, added to Scammony, and Compound Extract of Colocynth, each four grains.

At 4 P. M. he had several copious stools, of dark-grey color, but the fever was unabated; he was again bled to lb. iss. and ordered ϑ i. of calomel at bed-time.

Dec. 15th.—He is less feverish; but the liver is very little decreased in size, and still pained on pressure.

V. S. ad. lb. iss.

R. Pulv. Jalap. Comp. 3 i. at 7 A. M.

Apply 32 leeches over the region of the liver at noon.

Vesper.—He has had many stools, not very copious, but of various colors, partly of the dark orange-appearance before mentioned, with some slime and blood; the force of the circulation is much subdued, but his face is still flushed.

Apply ten leeches to the right side.

R. Calomel. ϑ i.—Extract. Hyoscyami gr. iv. fiant pil. ii. To be taken at bed-time.

Dec. 16th.—He slept, and has very little pyrexia at present, but there is a circumscribed flush in the cheeks; his tongue is dry, of morbid red color, and not much loaded in the centre. Pulse 116, rather hard, but small; the tenderness which was found on pressing over the liver, is unabated, and its size is not much decreased; the skin is always dry; he suffers from

anxiety, and his strength is reduced ; at the same time, there is reason to fear that the acute disease in the liver is not removed.

Apply sixteen leeches over the region of the liver.

R. Calomel.—Extract. Colocynth. Comp. āā gr. v.—to be repeated morning and night daily.

Dec. 18th.—He has been freely purged, the stools are of a dark-grey color ; his mouth is sore ; pulse 118. Heat of skin moderated, but a small circumscribed flush of the cheeks remains.

Apply a blister over the enlargement of the liver, which is to be kept open for 10 days ; and let camphorated mercurial ointment be rubbed to that part of the side, chest, and belly, which is not covered with the blister.

R. Extract. Colocynth. Comp.

————→ Hyoscyami

Pil. Hydrarg. āā gr. vi.—morning and night, daily.

The circumscribed tumor of the liver slowly increased ; and in a few days, dysenteric symptoms became very distressing, but were restrained by the usual remedies. On the 17th of January another blister was applied over the tumor of the liver.

January 20th.—Although there had been no distinct rigors since a very early period of the disease, it was too evident that an extensive abscess of the liver existed ; and at the same time, that the patient's strength was declining : therefore Colombo and mild tonics were administered, with the view of supporting his strength. These remedies were

ineffectual. He went to sea on the 13th of February: and I was informed that the abscess of the liver gradually increased in size, but had not burst on the 25th of February, when he died.

There was probably an abscess in the liver of this patient, before the treatment was commenced on the 14th of December; but I ascribed the want of success, principally, to his having contrary to orders, eaten soup during the use of active anti-phlogistic remedies, when he should have lived on bread and water.

CASE LVIII.—John Thompson, *Æt.* 50; a sailor of the ship *Warrior*, rather a slight made man, of dark complexion. Has been nine months in the Indian seas; and arrived from Batavia a few days ago. He was landed sick and sent to the General Hospital on the 20th of September, 1830; having been ill 14 days with enlarged liver, for which he had been bled twice, on board ship, and had a large blister applied to the right side. The mouth was then sore from mercury; the liver was enormously enlarged, so as to be seen as well as felt, below the cartilages of the ribs; and there was reason, from the accounts of the progressive increase of the disease for 14 days, to fear that an abscess had already formed, although there was no positive proof of this. He had no pyrexia on admission, and no pain in the right shoulder; the pulse was 84, soft, and rather full, and it did not exceed 86 while he was in the hospital; until the day the abscess burst.

He was bled from the arm once on admission, and had the usual purgatives, with calomel, and leeches to the scrobiculus cordis and side; followed by a blister, and afterwards camphorated mercurial ointment was used: but nothing arrested the gradual enlargement of the liver, debility increased, with anxiety. On the 29th of September, at 10 P. M., he appeared very uneasy, and agitated; the pulse rose to 124; he was incoherent, the feet became cold, and the tumefaction of the liver subsided. He remained restless all night, and died at 3 A. M.

On dissection, the subject was emaciated, old adhesions were observed in both sides of the chest. The liver was enormously enlarged, and of dark color, its texture soft, and easily torn; a large abscess at the lower edge of the right lobe, had burst into the cavity of the abdomen. There were no adhesions of the liver either to the diaphragm or to other parts; there were ulcerations in the cœcum.

The above patient died in five hours after the abscess burst into the cavity of the peritoneum; the note at page 327, records an instance where death occurred in 15 hours; and in the two following cases, the patients lived several days after the abscesses burst, and their contents were diffused among the intestines*.

* The liver is liable to be lacerated, or crushed, by external violence, and as such occurrences are occasionally the subjects of medico-legal investigation, it may be important to know that

CASE LIX.—John Backofen, an emaciated, small, pale, and unhealthy man, 44 years of age. A musician on board the Ship *Duke of York*, when she was wrecked on the 22nd May, 1833, and he has been

extensive injuries of the liver, are not always quickly fatal. In one case a man received a severe injury, by a horse falling upon him, in consequence of which he died in 27 hours after the accident. The first symptoms of concussion quickly subsided, and the patient was then faint, and often made efforts to vomit; he had a rapid and weak pulse, and appeared to sink under the usual symptoms of internal hæmorrhage. On dissection, an irregular laceration of the convex surface of the liver, at its anterior part, was found, surrounded by many coagula of blood: and there was a large quantity of blood in the cavity of the abdomen.

In another case, a man who was not quite sober, fell from a window at the height of 38 feet from the ground, early in the evening; it is believed that he remained for some time insensible: when discovered, he could not raise himself or stand erect, in consequence of very violent pain across the upper part of the belly. He survived the injury two whole days and three nights. The symptoms for the first 20 hours were the same as in the above case, but after that the abdomen became very tumid and tympanitic, and strongly-marked symptoms of enteritis came on, for which he was largely bled from the arm, but without any benefit. On dissection, a transverse and deep laceration at the convex surface of the liver was found, surrounded by many coagula of blood, and much effusion of coagulable lymph; there was also a great quantity of blood in the cavity of the abdomen and pelvis. The intestines and peritoneum were inflamed.

On the 25th of December 1833, a man was stabbed in the belly with a long and pointed knife, at half past 5 o'clock P. M.; there was a free hæmorrhage from the wound at first, and when he was brought to the hospital late in the evening, a portion of omentum was protruding, which was returned, and the wound was dressed.

lately living in the Bazar. He observed the epigastrium tumid four weeks ago, but suffered little pain, until a very strong drunken man seized him round the waist, and squeezed him violently, a few days ago; since which period he has had much pain in the region of the liver. He was admitted into the General Hospital on the 19th of July, 1833, suffering from much tumefaction and hardness at the epigastrium, and pressure there caused acute pain; the respiration was impeded; the pulse 84, soft, and weak: he said the feet had been swollen for six months past.

Leeches, fomentations, and blisters were employed, and purgatives with blue pill.

Early on the morning of the 23rd of July, he was suddenly seized with a violent pain in the belly, attended with anxiety, a rapid weak pulse, prostra-

He complained of pain at the epigastrium, the pulse was 90, and there was some anxiety. He did not sleep in the night, but he vomited; on the next morning his pulse was 112 and of moderate strength, he had much pain at the epigastrium, and the belly was tense, his skin was cool. The pulse gradually became more rapid, the belly more tumid, anxiety increased, he became weaker, and died at 3 P. M., about 21 hours after the wound was inflicted. On dissection, a wound of the liver 2 inches in depth was found, and that portion of the liver near the wound was pale: the gall-bladder, jejunum and mesocolon were also wounded. There was much blood, flatus, feculence and bile in the cavity of the abdomen, the peritoneum and intestines were inflamed, and a portion of the omentum was engaged in the wound of the parietes of the belly.

tion of strength, and cold extremities. The skin and eyes became yellow in the course of the day, and the evacuations by stool and urine were suppressed.

On the 24th of July, the pulse was 96, and evacuation by stool and urine took place. He remained in a very weak state, the integuments of the belly became inelastic, thickened, and in some degree pitted on pressure. On the 15th of August, diarrhoea commenced, and he died on the 18th of August, 1833.

On dissection, the liver and omentum majus were both found universally adherent to the adjacent parts, and an enormous abscess of the liver had burst into the cavity of the peritoneum. There can be no doubt that this occurred on the 23rd of July, and gave rise to the œdematous affection of the integuments of the belly subsequently.

CASE LX.—J. F. Painter, Æt. 39, an Indo-Briton, formerly a sailor of the Ship *Ernaad*. Admitted into the General Hospital on the 15th of May, 1833. He said that he had been ill for one month, with a purging; but he is in a state of emaciation, indicating a much longer period of disease than he acknowledges. The liver is slightly enlarged, the muscles of the belly are tense, and when pressure is made over the abdomen, he experiences some pain low down at the right side, almost as low as the region of the cœcum. The abdomen generally is flat and elastic, the tongue is dry, and nearly clean, having a slight white fur on it, the pulse 104 to 110. Leeches were applied daily

for five days, and mild mercurial aperients were administered, every day, until the 22nd of May, when those remedies were omitted, and a blister was applied. Emaciation gradually increased ; he had occasionally a pain in the right shoulder, and almost constantly a distressing diarrhœa, rising to stool from four to seven times daily. On the 9th of June, he felt a sudden pain shooting from the region of the liver down to the lower part of the belly, below the navel ; the pulse immediately rose to 126, and was occasionally as frequent as 132 : he suffered much from anxiety, coldness, and debility. The belly became exquisitely painful when the slightest pressure was made, and the purging ceased for two days, after which the diarrhœa returned. On the 15th, he seemed much weaker, and complained of difficulty in voiding his urine. He gradually sank, and died at $\frac{1}{2}$ past 3 o'clock P. M., on the 16th of June.

Dissection, 16 hours after death. The subject was much emaciated. A lamina of orange-colored coagulable lymph extended over the convex surface of the liver, and attached it slightly to the diaphragm. The liver was enlarged, and its texture was softened. A large abscess existed at the lower and right portion of its convex surface, which had opened into the cavity of the abdomen, and about five ounces of pus had flowed down into the pelvis. A large quantity of thick and nearly white pus remained in the cup of the abscess, the sides or surfaces of which, were covered with a thick, hard and white lining, which was rough

on account of numerous small projecting eminences. The mesenteric glands were enlarged, and a considerable degree of inflammation existed in the peritoneal lining of the pelvis, and of the lower part of the abdomen.

The sudden accession of acute pain, shooting from the liver down towards the pelvis, followed by a train of peculiar symptoms, announced distinctly the period when the abscesses burst in these two cases*.

CASE LXI.—John Sticklie, *Æt.* 48, a tall, thin man, of light complexion ; had an enlarged liver for four months, and had suffered from dysenteric symptoms during the last 23 days : therefore he was sent from his ship to the Hospital, on the 25th of Jan. 1829. He had been bled, and blistered, and had taken mercury to affect his mouth slightly, before he was landed from his ship. When admitted, he was weak and exhausted, had a dry brown tongue, pulse 116, general tension of the belly, and enlargement of the liver. He died on the 27th of January.

On dissection, universal adhesions were found in the right side of the chest, apparently not recent ; the lungs were not diseased. The liver was large, and slightly mottled on the surface. There were five distinct abscesses in the liver : of which, two were

* Painful strangury, similar to what occurred in this case on the 15th, was also observed in the case mentioned in the note at page 326, at the moment that the abscess burst into the cavity of the peritoneum.

large, and deeply seated in the centre of the right lobe ; one small abscess, not quite the size of a pigeon's egg, was situated near the anterior edge of the right lobe, low down at the right side ; and two smaller abscesses, not half the size of a marble, were just below the surface, at the convex portion of the right lobe ; but evident through the peritoneal coat. A distinct ecchymosed spot, the size of a small bean, was observed at the concave surface of the left lobe. The colon was contracted ; a few small circular ulcerations existed at its transverse portion : at which part there were also several very distinct cicatrices of large size, probably the effect of disease at a remote period. This is the only case in which I have met with the whole series of disease, consisting of ecchymosis, small abscesses, and large abscesses in the same subject. This man had never resided in Bengal : I was informed that he had been at N. S. Wales, and had visited several islands in the Indian Seas, within the last 12 months.

CASE LXII.—In the only case where I have seen a superficial abscess of the liver, exactly under the ligamentum latum ; the man was unable to lie on either side, but was obliged to rest on his back, with the shoulders very little raised. This patient was an emaciated European, named Lowder ; who had resided two years in Bengal, having been employed as a provisioner. He came to the General Hospital on the 22nd of September, 1831, in the lowest state of misery and distress ; having been ill with a

purging for nine weeks : he went to stool 20 times per day, and voided much blood. He had tried various remedies without success ; but can hardly be supposed to have followed any systematic treatment, as he said eight leeches had been applied to his belly, but he had not been bled from the arm.

On admission, he had frequent stools, and voided much blood ; part of which was in coagula. His pulse was 124, and weak ; the hands were cold : he had occasional hickup, was very feeble, and unable to rest on either side. There was a fulness at the epigastrium, inclining somewhat to the right side ; the rest of the abdomen was flat, and inelastic ; pressure over the belly caused little pain, except at the epigastrium. He continued low, and cold, without any favorable symptom, and died on the 27th of September.

On dissection, numerous sloughing ulcers were found in the colon. The liver was rather larger and paler than usual, and there was an abscess under the centre of the ligamentum latum, the size of half a large orange ; there were slight soft adhesions, for the space of three-quarters of an inch round this abscess. The surface of the cavity was in a sloughing state ; and the diaphragm only, intervened between the upper edge of this abscess, and the pericardium. The gall-bladder was covered with a false membrane, and rather smaller than natural.

Seeing that the climate of most parts of British India, often produces a tendency to hepatitis, and

abscess of the liver, in a large proportion of the Europeans residing in this country ; every fact connected with the origin and progress of diseases of the liver, is important. By far the greater number of cases of hepatitis are attended with distinct invasion of acute symptoms, and unequivocal signs of the predominant local disease appear early. However, we find that some persons suffer many times from continued fever, dysentery, or intermittent fever, during the course of two or three years ; on each of which occasions, they complain of pain in the region of the liver : after which they say they have an attack of *spasms* in the stomach, and become feverish for 8 or 10 days ; at the end of that period, symptoms of an extensive abscess having formed in the liver, are evident in many of those patients. In such cases we cannot suppose that a latent abscess of the liver had existed for two or three years. At the same time it seems probable that each return of their diseases, attended with pain in the hepatic region, has caused some organic change, whereby the tendency to acute hepatitis from slight exposure to exciting causes, is established. Some one of these attacks, either from being more intense in its nature, or from not being diligently treated, runs rapidly into supuration. We also find that Europeans whose constitutions are much impaired by long residence in India, are liable to sink under abscess of the liver, preceded for only a short period by acute symptoms, by which however, the progress of the disease is

usually rendered sufficiently distinct. A brief recital of the three following cases may place this subject in a clearer light.

CASE LXIII.—A tall but thin and muscular man, 56 years of age, and more than 30 years in India, suffered from dyspepsia, low spirits, and general ill-health, from 1829 to 1833; but at the commencement of the hot season of 1834 his health was considerably improved, so that he was able again to attend to mercantile business. On the 18th of March 1834, he was fatigued by going in the heat of the day to the Treasury, and Bank, and several other public offices, and while so employed he was seized with *spasm* at the pit of the stomach, shooting through the side, to the right scapula, and back. He went to a friend's house and got some brandy and hot water, by which the pain was alleviated, but he soon felt feverish, and called for my advice. He was still suffering from some pain at the pit of the stomach, right side, and top of the right shoulder, which prevented a full inspiration. A large number of leeches were applied to the region of the liver, immediately, and repeated on the two following days. Active purgatives with calomel were administered, strict quiescence in the recumbent posture was enjoined, and no food or drink allowed except tea in very small quantity. On the 4th day, the acute symptoms were moderated, and the size of the liver decreased. A blister was then put on, and kept open for 20 days, and some camphorated mercurial ointment

was rubbed over that part of the right side of the chest and belly, which was not covered with the blister, the bowels were kept freely open, and only a small quantity of farinaceous food was allowed ; a moderate salivation took place. By following this treatment for 25 days, the disease of the liver was subdued.

CASE LXIV.—A pale man, of rather sallow and unhealthy aspect, after residing 13 years in Bengal, became dyspeptic, and unable to attend as usual to business ; he had some shortness of breath, and was in a slight degree thinner than usual ; however, he ate his food in reasonable quantity. In consequence of these ailments, he came to Calcutta in October, 1827, intending to proceed to Pinang or China. When in Calcutta, he fatigued himself by a hard day's work, in packing and arranging his books, and from that moment he had oppression of breathing, and some pain in the right side, which increased slowly. A few leeches were applied once, and he took mercury till the mouth was sore. At the end of 18 days a troublesome cough came on, and on the 25th day after the pain in the right side commenced, a slight degree of bloody expectoration appeared. On the 26th day, he suddenly experienced a sense of suffocation and extreme faintness, and coughed up about four ounces and a half of rather thick and viscid puriform grey-colored matter. Hectic symptoms came on, and he became very low and weak, but the pain at the right side ceased. He went to sea, and slowly recovered his health.

CASE LXV.—A tall thin man, 54 years of age, who had frequently visited India in command of a ship, was seized on the 26th January 1833, while at dinner, with a “*sharp pain*” in the stomach, shooting through to the back ; and was unable to finish his dinner. He was treated with hot fomentations ; hot water and brandy, and anodynes were administered, after which, aperients and enemata were tried, but an affection of the liver was not suspected, and no active depletion was used for 16 days : an enlargement of the liver was then detected, and it was evident that suppuration had already taken place. He became slowly emaciated to an extreme degree, and the abscess burst into the intestines, on the 28th day from the date of pain at the stomach. He lingered for many months in a state of great misery, having occasional discharges of pus with the fæces, and then for several days appearing to recover. He died exhausted, seven months after the attack of pain at the stomach.

There can be little doubt that suppuration might have been prevented by active treatment, in the two last patients, as well as in case 63, which is placed here on account of its resemblance at the commencement to the other two. The subjects of cases 63 and 64 are now living in Bengal. In the course of this chapter we find many instances in which pytalism took place, and still the formation of abscess of the liver was not prevented.

I fear that acute cases of hepatitis which might be cured, do sometimes lapse into a most hopeless condition, from one or other of the following circumstances: 1st. When a system of very active treatment for acute cases, is suddenly remitted after two or three days; and not followed by persistence in the antiphlogistic plan; at the same time that a premature return to a full diet is allowed, which gives rise to vascular repletion, and increased action of the heart and arteries; causing serous interstitial deposit, and extensive abscess of the liver. 2nd. When the lancet has been inefficiently used at the commencement of acute inflammation of the liver, or when V. S. has been altogether omitted, and the cure trusted to leeches and mercury; low diet and tranquillity in the recumbent posture not having been strictly attended to. The more urgent complaints may be moderated by such indecisive treatment; although the disease, attended with obscure symptoms, is prolonged for several weeks; after which, indications of hepatitis slowly increase, and an extensive abscess of the liver is almost inevitable. The want of a sufficiently prolonged antiphlogistic treatment, is as certainly destructive in the one case; as the inefficient depletion at an early stage of the disease, is in the other.

The most difficult description of suppuration in the liver to detect on its commencement, or to arrest during its progress, is that where numerous small abscesses form, many of which are not much larger

than a filbert ;—these are mentioned at page 231, as occasionally occurring in subjects of a delicate and scrophulous constitution. In some of these cases the liver is very little enlarged, the patients are usually unhealthy and emaciated, and the fatal termination is for the most part produced by dysentery.



CHRONIC DISEASES OF THE LIVER.

It appears to me that many of the cases usually denominated chronic hepatitis, differ rather in degree than in any other essential, from the acute disease ; and they require more perseverance in the use of remedies ; although the same active treatment be not so necessary as in acute cases. In fact our distinct views of hepatic affections, and satisfactory modes of cure, refer almost entirely to the acute forms of those maladies ; and as we lose sight of them, the management of the disease becomes vague, and uncertain.

In the two following cases, we may be inclined to believe, that there was some slow inflammatory condition of the capsule of Glisson, the gall-bladder, and of the adjacent part of the liver ; connected with disorder of the duodenum. This opinion of the nature of the disease, would arise from considering the exact situation of morbid sensibility when pressure was made over the right hypochondrium ; (the pain being always fixed in the same spot, and

of circumscribed extent,) connected with some of the other attendant symptoms, which will be now detailed. Cases nearly similar to these, are sometimes attacked with pain extending to the top of the shoulder, and to the lower angle of the scapula; and they occasionally terminate in abscess of the liver.

CASE LXVI.—A gentleman, aged 33 years, of dark complexion, active habits, and very temperate in his living, four years resident in India; applied to me on the 5th of February, 1827, for advice, on account of a fixed pain in the region of the gall-bladder, attended with an irregular state of the bowels. He had generally a diarrhoea, the evacuations were for the most part dark, fluid, frequent, and scanty; occasionally there was a suppression of stools for a day or two, and then the looseness returned. There was a slight degree of feverishness constantly present; marked by thirst, a frequent pulse, and white furred tongue: his appetite was indifferent, food always produced uneasiness, and sometimes nausea; a considerable degree of emaciation had gradually taken place.

These complaints were of 16 months duration, he had been several times under the influence of mercury, had used leeches, and the side had been blistered many times; but without benefit. Some of his friends despaired of his recovery in India, and others tried to persuade him that the pain in the side was *rheumatic*!! They all acknowledged that he had been gradually wasting in strength for many

months, and was now much altered in appearance. On examination, I found a distinct tumefaction just below the centre of a line drawn from the umbilicus to the right nipple; and pressure at that part, or holding the body very erect, caused pain. It was evident that he was suffering from a turgid state of the gall-bladder, with some inflammatory condition about the capsule of Glisson; probably attended with a slight and circumscribed inflammation of a portion of the liver. The inefficacy of his former treatment appeared to me to have depended on want of sufficient perseverance in local blood-letting, while more food had been allowed than was consistent with the beneficial operation of the medicine. He was therefore restricted to tea, bread, and toast-water. Eight leeches were applied over the region of the gall-bladder daily, for four times. He was ordered six grains of compound extract of colocynth, with four of calomel, and four of extract of hyoscyamus every night, and a drachm of compound powder of jalap every morning. Quietness in the recumbent posture was enjoined, for the purpose of not exciting frequency of pulse, and to prevent his feeling the debility arising from low diet.

February 9th.—He has had from three to five copious stools every day, and is certainly less feverish; his tongue is cleaner; the morbid sensibility in the region of the gall-bladder has decreased. The same medicine was ordered to be repeated daily; eight leeches were applied to the seat of the pain

every second day ; and he was allowed a tea-cupful of gruel daily at noon.

Feb. 21st.—He has had four or five free stools daily ; the evacuations are of lighter color : his mouth is slightly affected by the calomel. The pain at the right side is very materially decreased ; and the habitual febrile state has subsided ; his strength does not appear much lowered by the treatment, and he is inclined to eat, if allowed. A small blister is now ordered to be applied over the pained part of the side, and kept discharging by savine dressing. The former medicines and leeches were omitted, and he was ordered to take

Extract. Colocynth. Comp. gr. vi.—Pil. Hydrarg. gr. iv. every night at bed-time ; and

Pulv. Jalap. Comp.—Pulv. Scammon. Comp. (Ph. Ed.) āā 3 ss. every morning.

March 3rd.—The bowels have acted very freely, three or four times a day. The erect posture, and leaning back, cause no pain in the region of the gall-bladder ; he is free from fever, has a clean tongue, and he feels hungry, thin and active ; declaring that there has been more relief from the medicines of last month, than he had experienced from all the treatment of the previous year. The blister allowed to heal. He was directed to take soup and bread pudding, or similar food for dinner ; to take exercise in a carriage ; and instead of the former medicine, he was ordered a small tea-spoonful of Cheltenham salts in half a tumbler of tepid water every morning,

and two of the following pills every night at bed-time.

R. Scammon. Gummi-resinæ
 Extract. Colocynth. Comp. āā 3 i.
 Saponis Duri—Cambogiæ āā gr. xv.—misce, et divide in Pil. No. xxx.

This treatment was continued daily, for three weeks; and after that, the pills and Cheltenham salts were taken twice a week, during all the hot weather. The usual diet of health was gradually resumed, but wine was proscribed for many months. After recovery, exercise on horse-back was advised. This patient has not since been one day confined to the house; but directs a mercantile business, requiring very active exertion.

A protracted disease of this sort, in a person not entirely tractable on the score of diet, is not likely to be remedied by any plan of medical treatment.

CASE LXVII. A similar case, but of slighter description, came under my care on the same season with the above; the patient was rather a smaller man, and only three years in India; his complaints were of eleven months' duration when he applied to me; and there was less tendency to diarrhœa, and less feverishness; but the circumscribed pain exactly in the region of the gall-bladder, had obstinately resisted treatment for nearly a year, and a short sea-voyage had been tried without benefit. He also had taken mercury slightly to affect the mouth more than once; and had applied leeches, in succession

for a number of days, and he had been blistered. His residence and occupations were very unfavourable to recovery, and therefore I advised a removal for some months. Six leeches were applied daily for three days, and after that four leeches every 2nd day for 10 days more. Blue pill and colocynth were used at night, and a mild aperient in the mornings. The nitro-muriatic acid bath was also used to the feet every night for 15 times. A vegetable diet was advised in very small quantity: and all active exertion prohibited. This patient improved slowly from the middle of February to the 26th of March. I then found it requisite to follow a more active purgative treatment for nearly three weeks, and he was entirely relieved; but on omitting medicine there was a great tendency to constipation, and the patient was pale and weak. He derived much benefit, when in this constipated state during convalescence, from taking in the morning a small wine-glassful of compound decoction of aloes, daily for a fortnight; and two of the following pills every third night.

R. Scammon. Gummi-resinæ
 Extract. Colocynth. Comp. āā 3 i.
 Saponis Duri—Cambogiæ āā 3 ss.—misce, et divide
 in Pil. No. xxx.

The more tardy recovery of this patient may be ascribed to want of active purgatives; and to insufficient number of leeches at first. A reliance on the nitro-muriatic acid bath, also in some degree

stood in the way of better remedies. From these causes this patient was twice as long under treatment as the more protracted and severer case that stands before it. However I had the satisfaction to find him fit to attend to business, by the beginning of June.

I think no one will hesitate to follow the more active mode of treatment, by which the early recovery of the first of these cases was accomplished. We have occasion to see complaints of this sort every year in Bengal, and many of them, in the early stage, or even at any period, if attended by pyrexia, or by much tension at the right side; require repeated use of the lancet.

CASE LXVIII.—John M'Can, *Æt.* 20, a recruit, and formerly by trade a painter; of middle stature, light complexion, and delicate appearance, arrived from England on the 30th of May, 1829. He was sent to Hospital with disease of the knee-joint, of five months' duration, for which he had been cupped once, and blistered eight times. On his admission, there was not much swelling of the knee, and no external redness, but the part was rather hot, and tender on pressure: walking caused some pain; there was slight contraction of the limb. Leeches were applied four times; purgatives were administered in the mornings, and Plummer's pill at night, and rest enjoined. In ten days the morbid sensibility, and heat of the knee were subdued; but a degree of elastic cold swelling of the joint remained, with slight lameness.

The knee was therefore packed in the mercurial plasters, and bound up as recommended by Mr. Scott. The limb was kept at rest, and the plasters were renewed once in 10 days. He was allowed chicken diet, and a pint of milk. Under this treatment the swelling of the knee decreased.

July 1st.—He is pale and weak, therefore ordered to take Pulv. Calumbæ ʒ i.—Pulv. Rhei—Sodæ Carbonat. āā ʒ ss. every morning : and on account of the remaining swelling of the knee, he had Pulv. Scillæ gr. iii.—Pil. Rhei Comp. gr. vi. every night ; which usually moved the bowels three times a day.

July 7th.—He complains of cough and shortness of breath, attended with scanty viscid sputa, which have existed for four days. On examination, the chest is found well formed ; a full inspiration causes pain in the breast ; pressure on the abdomen gives no pain, except over the region of the spleen, and from thence up towards the scrobiculus cordis. There is no pyrexia ; the urine is scanty, high-colored, and coagulates slightly when heated : he is pale, and has a clean moist tongue. Pulse 120, and soft : he is obliged to sleep with his head much raised.

He was put on a diet of tea and bread, with sago ; leeches were applied to the left side of the chest daily, for five days, and that part was covered with a poultice after the removal of the leeches : and purgatives with squill were administered. By these means the pain in the chest ceased, cough decreased, and his urine when exposed to heat did not become turbid ;

but he had a pain about the middle of the left clavicle; the pulse was 120, and rather small. His bowels were kept free; and Tincture of Digitalis was administered twice a day.

July 15th.—The pulse remains 120; he has a return of pain in the chest; and his breathing is more hurried; the face is quite pale, and there is no pyrexia. A blister was applied to the chest, and kept open; and four grains of Pulv. Digitalis are ordered to be given in the course of the day, with Pil. Scillæ Comp. and Extract. Colocynth. Comp.

July 20th.—He seems little better, but still has a troublesome cough with copious sputa, in appearance like saliva, and readily mixing with water. Pulse 108, and rather small; skin moist; tongue white and moist. Former medicine omitted, and he is ordered Mist. Ammoniaci, with Tinct. Digitalis, three times a day. Bowels to be kept free. Under this treatment the cough decreased. The pulse gradually came down to 96, on the 22nd; to 86, on the 24th; and on the 26th July, his pulse was 84, and soft; face pale, and he had very little cough. Resumed chicken diet, and was ordered

Pulv. Calumbæ Ḑ i. Pulv. Rhei

Sodæ Carbonat. āā Ḑ ss. daily, instead of his former medicine.

He seemed to be improving till the night of the 8th of August, when a profuse purging came on, and he said he passed some blood, but the stools were not kept. When seen in the morning, the skin was

rather hot, the tongue of a dusky red color and somewhat swollen, the belly full, and not elastic but doughy; he felt very weak. He was ordered a dose of Pulv. Jalap. Comp. $\frac{3}{4}$ ss. which produced five scanty, fluid, black stools, in the course of the day. In the evening, he had no pyrexia, but there was a slight pain in the temples, and morbid sensibility when pressed over the cœcum; the tongue was clean, moist, and slightly fissured. Pulse soft; the belly had still a doughy inelastic feel. Six leeches were applied over the cœcum, and he was ordered

Extract. Colocynth. Comp.—Pil. Hydrarg.

Extract. Hyoscyami āā gr. iv. at bed-time.

August 10th.—He had seven stools during the night, equal to two copious evacuations, of deep rhubarb color, and not quite fluid consistence.

Six leeches repeated over the region of the cœcum.

Pulv. Rhei $\frac{3}{4}$ ss.—Calomel. gr. ii. in the morning, and repeated at noon.

He was ordered a mild purgative daily. On the 12th of August, there was slight morbid heat of skin; the pulse was 180. He was free from pain: the stools were of dark color and slimy. On the 13th, some tension of the muscles of the belly was observed, but pressure caused no pain. Castor oil was given in the morning, and 10 grains of calomel with extract of hyoscyamus at night. On the 16th, the recti abdominis muscles were observed to be tense; but there was no pain in the right shoulder or on pressing over the liver. Pulse 112.

August 19th.—Pulse 90; the belly is slightly retracted, and the recti abdominis muscles are tense; he has pain in the right shoulder and down the arm, which was first felt yesterday. On the 20th, a slight hardness of the liver was observed; the right rectus abdominis muscle was more tense than the left; he was pale, emaciated, and weak. Leeches were repeatedly applied to the region of the liver in such numbers as the strength permitted; and afterwards a blister, which was kept open, but the symptoms of liver abscess were too evident, and progressive. On the 24th, he had a rigor at 1 P. M.; he vomited often, and had six stools, with a slight appearance of pus in the evacuations. The pulse gradually rose to 120, and then to 126. On the 27th, he had a copious perspiration, and a hectic flush in the cheeks; the tongue was of a morbid red color.

On the 31st of August, the enlargement of the right lobe of the liver was more prominent, and the skin slightly discolored; therefore potassa fusa was applied to the tumor for the purpose of promoting adhesion of the tumid liver to the abdominal parietes, and of soliciting the approach of the abscess to the surface. On the 3rd of September, he had a troublesome cough, with copious expectoration of yellow, muco-purulent matter, of a "*bitter stinking taste.*" The tumor of the liver was less prominent; but he felt easier. The urine was of a deep color, and there was a white powdery sediment at the bottom of the urinal.

On the 5th, the cough had decreased, and he expectorated a thin oily matter, slightly tinged with greenish-yellow bile. He died on the 7th of September, 1829.

Dissection. Subject much emaciated. Universal adhesions in the right side of the chest; the lung was decreased in size, and contained many suppurating tubercles. Partial adhesions existed in the left side of the chest, apparently not recent, and there were several indolent tubercles in the left lung. The liver was enlarged, and its convex surface adherent to the diaphragm, through which an hepatic abscess had opened into the right lung. The gall-bladder elongated and flaccid, contained about 3 iiss. of straw-colored fluid, like varnish. The capsule of Glisson and gall-bladder were covered with an adventitious membrane, apparently not of recent formation. The cystic duct was obliterated at its upper part; a small indurated tumor was observed near that duct, which had probably by its pressure caused its closure, and the cohesion of the duct, at the same time when the inflammatory process took place, by which the gall-bladder and capsule of Glisson had been covered by an exudation of coagulable lymph. The cœcum was enlarged, its coats were thickened, and its mucous membrane was ulcerated: the glands of the mesentery and mesocolon were enlarged.

CASE LXIX.—Louis de Antonio, a sailor of the Portuguese ship *Temerario*, received a violent contusion on the right thigh and hip, when at sea, three

months before his arrival in Calcutta ; which caused an extensive abscess in the limb, and disease of the bones of the hip ; with which he was admitted into the General Hospital, on the 19th of October, 1829 : and remained with this lingering and painful disease till the 29th of June, 1831, when he died exhausted. During the course of treatment for the above complaint, he had symptoms of liver disease, which he said first began on the 14th of February, 1831, attended with constipation and general uneasiness. Purgatives with bluepill were administered on the 16th ; there was then general uneasiness of the belly, with flatulence ; some tension in the region of the liver, and a bitter taste in the mouth. On the 17th, fulness was apparent in the region of the liver, and some uneasiness over the whole belly, which was most felt towards the left hypochondrium ; there was no pyrexia. He was freely purged by 10 grains of calomel, and as much compound extract of colocynth. Leeches were repeatedly applied to the epigastrium, active purgatives were administered daily, and he was put on low diet. By these means, the pain and uneasiness in the liver, were slowly subdued.

This man died exhausted by the suppuration about the hip joint on the 29th of June, 1831.

On dissection, eight hours after death, the subject was found much emaciated : the right leg œdematous. Extensive adhesions existed in the right side of the chest, not of recent formation. The liver was much enlarged, and of deeper color than natural ; its section

bleeding freely : the concave surface of the right lobe was extensively adherent to the stomach ; there was a small distinct depression like a cicatrix at the concave surface of left lobe, but there was no adhesion exactly at that point. There was extensive caries of the acetabulum, and head of the femur.

It is probable that the morbid appearance at the concave surface of the right lobe, must have been attended with more strongly marked acute symptoms than occurred while the patient was under my care ; and I am of opinion that it was the result of acute inflammation at a former period, most likely coeval with the disease which produced the adhesions in the right side of the chest. The transient inflammatory symptoms which appeared, as above stated, on the 14th of February, seem to have been produced by a very small abscess, which was absorbed, in consequence of the treatment pursued ; which was active, considering the state of this man's constitution.

CASE LXX.—Herrick, *Æt.* 41, a tall thin man, of dark complexion : has been several voyages to India in the course of 12 years ; and after residing 18 months in Calcutta, had a bad compound fracture of the leg on the 3rd of October, 1829. He was so far recovered on the 13th March, 1830, as to be able to walk with crutches ; and then had an attack of pain in the region of the liver, which was not removed by a purgative : pressing over the right hypochondrium caused pain. He was put on a low diet,

and had 10 leeches applied to the side daily, for eight days ; and took active purgatives with calomel, or blue pill, and compound extract of colocynth. The mouth became slightly affected, and the pain of the side was removed.

The three foregoing cases are remarkable examples of hepatic disease commencing slowly in men who had been a long time in hospital, and neither suffering from diseases usually considered liable to produce hepatitis, nor exposed to any exciting cause except the climate of Bengal.

CASE LXXI.—R. Child, *Æt.* 29, of middle size and dark complexion ; 10 years in India. Admitted into the General Hospital, on the evening of the 2nd of December, 1830 ; having been ill six days with fever and pain in the region of his liver ; for which he has been purged, and has applied many leeches : he appears very low, and much exhausted, from the exertion of removal to Hospital. He has now an enlargement and hardness of the right lobe of the liver, attended with a slight cough ; and is obliged to lie with his head much raised.

R. Extract. Colocynth. Comp. ʒ ss.

Calomel. gr. v. misce ft. Pil. ii. *℞.* s.

December 3rd.—He has had two stools ; there is at present a slight degree of pyrexia, some cough, and enlargement, with hardness of the right lobe of the liver. Diet—tea and four ounces of bread, twice a day.

V. S. ad lb. iss.

R. Extract. Colocynth. Comp.

Calomel. āā ᠑ ss. at 7 A. M.

Apply twelve leeches to the epigastrium at noon,
And let him then take Pulv. Jalap. Comp. ᠓ i.

Dec. 4th.—Pyrexia decreased, and he coughs less; the hardness of the liver is not abated: he has had six stools.

Apply sixteen leeches to the region of the liver.

Let all medicine be repeated as yesterday.

R. Calomel.—Extract. Colocynth. Comp. āā ᠑ ss.

Extract. Hyoscyami gr. iv. in pills, at bed-time.

Dec. 5th.—He appears better; the enlargement of the liver is decreased.

Apply eight leeches to the region of the liver.

Pills repeated morning and night, as yesterday.

Dec. 6th.—He suffers little pain, and there is no pyrexia. His mouth is sore; he has had only two stools.

Apply four leeches to the region of the liver.

R. Extract. Colocynth. Comp. ᠑ ss.

Pil. Hydrarg. gr. v.—in three pills, in the morning.

R. Pulv. Jalap. Comp. ᠓ i. at noon.

R. Extract. Colocynth. Comp.

—Hyoscyami āā gr. viii. at bed-time.

Dec. 7th.—He suffers less pain; very little enlargement of the liver remains.

Apply eight leeches to the region of the liver, and let all medicine be repeated as yesterday.

Dec. 8th.—He has had six stools; and has occasionally a slight pain in the liver.

Repeat eight leeches to the region of the liver,
And medicine as yesterday.

Dec. 9th.—He has some cough, and a slight fullness in the region of the liver remains. Milk diet allowed.

Apply a blister to the side, which is to be kept open.

Repeat all medicine, daily, as on the 6th of Dec.

Dec. 13th.—A slight cough remains; but he is free from pain.

R. Extract. Colocynth. Comp.

Scammoneæ Gummi-resinæ āā 3 ss.

Saponis Duri—Cambogiæ āā gr. xv.—misce et divide in pil. xv.—Two pills every night.

Chicken diet was allowed after the 16th.

Dec. 19th.—He remains much emaciated, and is very pale: his tongue is white, pale, and bloodless. On examination, the liver does not appear to be enlarged at present. He has a slight cough at night, with some pain above the right nipple, and he sleeps with his head much raised. Former medicine omitted.

R. Pulv. Jalap.—Pulv. Rhei

Pulv. Calumbæ—Pulv. Zingiberis

Potassæ Supertart. āā 3 ss.

Ferri Sulphatis gr. v.—Tinct. Sennæ 3 ii.

Aquæ Menthæ Pip. 3 viiss. misce.

Capt. 3 i.—Omni mane.

January 10th, 1831.—His appearance is much improved; and the bowels are free; but he has still some cough at night, and tough viscid sputa. Mixture omitted.

R. Extract. Colocynth. Comp.

——— Hyoscyami

Pil. Hydrarg. aa gr. iv.—in pills every night.

Jan. 14th.—Discharged well. I have very seldom seen tonics or chalybeates given with advantage, during convalescence from liver diseases. In the majority of those cases, convalescence proceeds most favorably, if the patient be made to use a moderate and simple diet, and to reside in a good, cool, and airy house; keeping the bowels very free, and the skin perspirable. If a sea-voyage be available at an early period of convalescence, it is beyond all other means, the best to insure permanent recovery. In the following case the same mixture of purgatives, with Pulv. Calumbæ and sulphate of iron, were tried, but could not be continued.

CASE LXXII.—Jacob Weaver, *Æt.* 26, a sailor, of middle size, and light complexion; of a pale and rather bloated appearance: landed from the Barque *Monmouth*, on the 20th of November, 1830; this being his first arrival in India. He has been ill three months during the voyage, with a purging, which now continues: he has eight stools in 24 hours; but he has lately voided no blood: for the last three weeks he has been subject to occasional vomiting. The liver is now large, but he does not know how long this has been the case; the right rectus abdominis muscle is tense; there is slight pyrexia; the tongue is white, moist, and nearly clean.

V. S. ad. lb. iss.

R. Calomel.

Extract. Colocynth. Comp. āā ss. at 7 A. M.

Sixteen leeches to the region of the liver at 4 P. M.

R. Extract. Colocynth. Comp. ss.

Pil. Hydrarg. gr. v. at bed-time.

By these means he was freely purged, and the pyrexia removed; the blood taken in the morning, was not buffy.

On the 21st, sixteen leeches were applied, and he was better. After this, a course of mild mercurial purgatives was continued daily; and he had eight leeches to the right hypochondrium every day, till the 27th; thereby the enlargement and tension in the region of the liver, were very much diminished.

Nov. 28th.—A blister was now applied and kept open; and the same course of mild mercurial purgatives was continued daily, till the 19th of December: he was then pale, and reduced; but some degree of elastic fulness of the belly remained; the urine was copious and pale colored; and his remaining ailments were ascribed to languor. He had been heretofore on a vegetable and milk diet, in limited quantity: but was now advised to use meat, and to take daily some Calumba powder, and sulphate of iron, with mild purgatives, as prescribed at page 361. After two days' continuance of these remedies, a vomiting came on, with uneasiness and tension of the belly; and it was found requisite to omit them, and to use calomel and blue pill, with colocynth and castor oil;

which had an immediate good effect. He was discharged on the 29th of Dec. 1830.

CASE LXXIII.—Mrs. Thornton, *Æt.* 29 ; a delicate and rather small person, of light complexion, two years in Bengal. Admitted into the General Hospital, on the 27th of August, 1830 : she has been ill five days with dysentery, the purging is now constant ; the liver is enlarged, her general health much impaired, and debility extreme. The dysentery was treated by the usual remedies, and soon subsided ; after which, she suffered from rheumatism, and œdema of the feet, and had occasional slight returns of dysentery, the evacuations being generally of a pale-grey color, and occasionally watery and frothy. She gradually sunk, and died.

On post-mortem examination, the subject was found exceedingly emaciated. There were a few old adhesions in both sides of the chest. The liver was slightly enlarged, and œdematous ; color paler than natural ; texture somewhat indurated ; its surface distinctly marked by the pressure of the cartilages of the ribs ; the whole course of the colon was much contracted.

I have met with many cases, in which the appearance of the liver on dissection was so like to that of œdema, that I should not know how to describe it by any other name ; the impressions of the cartilages of the ribs being deep and distinct. The liver, compared with the general appearance of the subject, was in most cases enlarged, its texture slightly indurated.

rated in the greater number, its color when morbid, rather lighter than in health, and its section not bleeding much. The patients had been, nearly all, pale leucophlegmatic subjects, with constitutions impaired by climate. This pathological condition probably might be deemed unimportant, and in itself, so far as we know, it is not conducive to fatal termination. The indications for the treatment of the constitutional disorder, which co-exists with these cases, is usually sufficiently distinct, if the patient's strength be tolerable. As the enlargement of the liver was in most of the patients evident during life, I am unwilling to pass without notice a condition which occasionally occurs in debilitated patients in this country.

The principal chronic diseases of the liver, not yet alluded to, are as important on account of the circumspect and moderate treatment to be followed in their management, as most of the diseases already spoken of, are, by reason of the very active remedies which are requisite to save life in their acute stages. The following diseases of the liver, which are really chronic, have been observed in this country.

1st. The red disorganisation, with slight enlargement, induration, and irregularity of the surface of the liver. This morbid condition arises from hypertrophy of the red substance of the liver, and some obstruction to the venous circulation. Red blood of an unhealthy description abounds in these patients; they suffer much from various constitutional

ailments, and are distressed by disorders of the stomach, and digestive organs. They generally die from extreme emaciation, which takes place rather suddenly; and which is attended with a troublesome cough.

2nd. The pale degeneration of the liver, is generally attended with some enlargement. It depends on hypertrophy of the yellowish-white substance of the liver, and there is more or less induration of the diseased organ. It occurs most frequently in persons of pale complexion, who have been long resident in India; the patients are generally bloated, fat, and dropsical; they are sometimes slightly jaundiced.

Either of the above modifications of morbid structure of the liver, are occasionally met with when the organ is diminished in size.

3rd. Concurrent with some of the chronic indurations of the liver, the biliary ducts are occasionally found closed.

The more we have to do with the above varieties of chronic cases, in aged persons; the more shall we respect the opinion of Van Swieten, who says, "they require to be treated with the greatest gentleness; and are hardly ever to be cured." In many of these cases of extensive chronic disease, which we are obliged to acknowledge incurable; life may be prolonged, and suffering moderated, by temperate habits, and a scientific plan of regulating the diet, exercise, clothing, and state of the digestive organs.

In chronic liver disease, where there is some enlargement of the organ, and there appears superabundance of red blood in the capillaries as above described, the utmost temperance in food and drink must be enjoined, with daily exercise. These cases are best treated as follows:

R. Pil. Plummeri—Pil. Aloes Comp.

— Cambogiæ Comp. āā gr. iij.

Pulv. Scillæ gr. ij. misce fiant Pil. ii.

These two pills are to be repeated every night; and two table-spoonsful of Savory and Moore's fluid extract of sarsaparilla in the mornings. After 10 days, these medicines should be omitted, and some of the following mixture, taken every morning for 20 days:

R. Magnesiae Sulphatis ʒ iss.

Potassæ Supertart. ʒ i.

Sulphatis Potassæ cum Sulphure ʒ ii.

Aquæ Bullientis lb. i. misce et cola,—

deinde adde Ferri Sulphatis gr. iv.

A wine-glassful, to be mixed with the same quantity of tepid water, and drank every morning early. A tepid bath should be used twice a week. This plan requires to be followed for three or four months; the pills and sarsaparilla being taken for the first 10 days, and the mixture for the next 20 days of each month.

In those cases where the patients are old, pale, and leucophlegmatic; and there is a deficiency of red blood in the capillaries generally; and we find a tumefaction of the liver, which we have reason to

believe is the pale degeneration: mild aperients with a very minute proportion of chalybeates are beneficial. The *Extractum Taraxaci* in doses of ʒ i. twice a day, taken in syrup, and washed down with infusion of chiretta, are also frequently very useful, and the nitro-muriatic acid bath should be tried.

Enlargement of the liver, is not uncommon in Bengal, in children below four years of age. It sometimes takes place in an acute form during fever; and is then generally removed by the leeches and depletion requisite for the cure of that disease. But the most frequent enlargement of the liver in subjects of this tender age comes on slowly, attended with emaciation and occasional slight returns of fever; these children are pale, and they frequently have diarrhoea, with some cough; and in the majority of cases, the enlargement of the liver is not very palpable, until the constitution is much impaired. This slower description of tumid liver, seems frequently the sequel of disorder of the digestive organs, of long continuance; marked by torpor of the intestinal canal. The evidences of liver complaint, are preceded by disorder of the constitution, and so distinctly supervene on it; that we cannot reasonably ascribe the whole train of morbid phenomena, to the disorder of the liver, which happens among the last in the series. In these cases, great care is requisite in affording the child sufficient mild food to live on,

during the cure, without aggravating his malady by causing irritation and vascular repletion. Our means of cure are comprised in repetition of small numbers of middle-sized leeches over the tumid liver, as long as any trace of pyrexia and inflammatory symptoms may demand their application; followed by a small blister, kept open for many days, and a course of mild purgatives, so as to procure four stools daily. Jalap and scammony, with calomel, are the most effectual purgatives, in the majority of cases attended with pyrexia;—but I am bound to say, that in nearly one-half of those cases of tumid liver, which take place slowly in pale and delicate children, mercury is injurious. In those cases, omitting the calomel, we may occasionally change the above purgatives for compound extract of colocynth and camboge, or for rhubarb and sal poly-chrest, or castor oil. The skin must be kept perspirable by regulated clothing and tepid baths, and a voyage to Europe should be enjoined in all cases where that is practicable.

Acute liver diseases, are much more rare in European women, than in the men of a corresponding class in society; by reason of their more temperate habits of mind, as well as less exposure to the exciting causes of those diseases, and their more abstemious modes of living. But women are often liable to insidious liver disease after fevers, and in consequence of disorders of the digestive organs,

that are very apt to terminate in hepatic abscess. Therefore, in the treatment of those diseases, it is important to attend carefully to the progress of convalescence, to regulate both diet and medicine discreetly, and to enjoin regular exercise daily, until the *lentæ morborum reliquiæ* be entirely removed.

JAUNDICE.

THERE is no occasion to treat in this place of the Jaundice which occurs during some severe fevers*, as that subject will be noticed in the course of the chapter on the fevers of Bengal; nor is it my intention to describe the yellow suffusion of the skin, which is occasionally observed during those affections of the brain, which follow injuries of the head: but the more chronic forms of jaundice which occur in Bengal, unconnected with much febrile disorder, may here claim our attention. Jaundice must

* It will be interesting to ascertain with precision, the causes of yellow suffusion of the skin and eyes in the yellow fever of the West Indies, in which, both intense cerebral affection, and very acute gastro-enteritis, either co-exist, or follow each other in rapid succession. It is possible that in those cases, jaundice may be produced by the direct effects of gastro-enteritis, and particularly of inflammation with serous or sanguineous effusion and swelling about the duodenum. In consequence of the reciprocal influence of the brain and liver, the excessive determination of blood to the head in the early stage of yellow fever, may also, be supposed capable of giving rise to the yellow suffusion in those cases. The influence of injuries of the brain in producing disease of the liver, has been proved by the observations of Andouillé,

be considered a symptomatic affection ; and the following definition may be admitted as comprising the principal characters of the disease. The skin and eyes of a yellow color, urine of a very deep yellow, or a reddish-brown, and sometimes greenish ; the stools often nearly white or of clay-color ; nausea and vomiting occasionally occur, and frequently dejection of spirits.

A question may sometimes arise, whether the colour of the skin, in pale, sallow and unhealthy subjects, with cadaverous complexions, does actually depend on the presence of bile, or if the discoloration of the skin and eyes arise from other causes ; but as the smallest quantity of bile in the urine or in the serum of the blood, may be detected by applying the test of nitric acid, or of solution of oxymuriate of mercury to those fluids, we can easily remove any doubt as to the nature of the discoloration.

Jaundice may be caused by whatever obstructs the passage of the bile through the ductus communis into the intestine. Compression of the biliary ducts by enlarged glands in the capsule of Glisson, inflammation or swelling of the duodenum near the termination of the ducts ; the passage of gall-stones along the common duct, tumors of the pancreas or in the mesentery, and scirrhus pylorus have certainly caused jaundice ; and perhaps, in some rare cases, mental emotions*,

Bertrandi, and Richter. I submit the farther elucidation of this subject, to the scientific researches of my professional brethren.

* We cannot reasonably refuse to acknowledge that mental emotions may sometimes affect the biliary secretion, when we see

and bites of venomous serpents. Spasms of the ducts ; viscosity of the bile in the gall-bladder, and absorption of bile from the pennisilli in the liver, without any obstruction of the cystic, hepatic, or common ducts, have been supposed efficient causes of jaundice, without any proof that such morbid conditions do ever produce the disease.

I find jaundice, not only during its early stage, but for a long period afterwards, while the bilious discoloration remains ; very generally attended with some morbid sensibility, when pressure is made over the situation of the gall-bladder and capsule of Glisson : though the uneasiness, during the absence of pressure, is most generally referred to the epigastrium. The intense yellowness of the skin, and conjunctivæ, and very high color of the urine ; in some cases, fades a little for a day or two, and then increases without any evident cause. The increase of yellow color, for the most part, corresponds with augmentation of the pain when the epigastrium and region of the gall-bladder are pressed ; and when the bowels are costive : while the decrease of color of the skin and eyes, seems connected with free action of the bowels, and diminished local pain.

so many examples in which those causes influence the secretion of milk, of tears, of the saliva, of the menstrual secretion from the uterus, and of the perspiration, as well as some other secretions : at the same time it may be doubted whether mental emotions do actually ever excite the *absorption* of bile, so as to cause jaundice ; though some facts on record would seem to authorise our believing that such causes may produce that disease.

During the continuance of jaundice, and especially while it is increasing, patients are affected with loss of appetite, and indigestion ; and sometimes are liable to sickness of stomach, flatulence, and tension at the epigastrium, and hypochondria : but even when acute symptoms are present, the principal pain experienced on pressure, is usually circumscribed, and fixed at one spot : sometimes there is pain at the point of the shoulder and under the scapula. Dejection of spirits, lassitude, and a bloated puffy swelling of the face, often indicate the extent of constitutional derangement which the patient is suffering. Nevertheless, we sometimes see people attending to all their ordinary occupations, and eating and drinking as usual, while the skin and eyes are of an intensely yellow color.

The stools assume a clay-color, or become nearly white in many cases of this disease ; and this absence of color in the stools, when bile is abundantly absorbed and carried into the circulation, seems unattended with much constitutional disorder, referrible to the want of bile in the intestines, in many of those persons who are pale, weak, and leucophlegmatic : but plethoric subjects, in whom jaundice takes place, and the stools are of a pale clay-color, almost always suffer from pyrexia ; and in some cases, I have known robust patients die with symptoms of oppressed brain, within 36 hours after the sudden appearance of intense jaundice ; for the accession of which last named disease, no cause could be assigned. At

the time these cases occurred, sufficient attention had not been paid to the state of the capsule of Glisson.

Much obscurity is acknowledged to exist respecting the pathology of jaundice, therefore I have been anxious to ascertain the exact state of those parts about the liver and biliary ducts, which might be implicated in the production of this disease. The almost invariable existence of pain, which is increased by pressure, and confined to a circumscribed spot at the right side, just below the centre of a line drawn from the right nipple to the umbilicus; led me to believe formerly, that inflammation of limited extent in some part of the liver, was the most frequent cause of the ordinary cases of jaundice unattended with ardent pyrexia in adults. The more certain, and more prompt cure, which in the majority of cases followed a regular system of depletion, served to confirm this opinion: but if circumscribed inflammation of a portion of the liver, were the efficient cause of the disease in question; I was not able to account for the general absence of jaundice, during the progress of the most unequivocal and intense inflammation of large portions of the liver, even when hepatitis has proceeded to suppuration. At least inflammation of a portion of the liver, alone, did not appear a sufficient reason for jaundice; although symptoms of moderate inflammation of limited extent so generally precede and accompany the yellow suffusion of the skin and eyes. Moreover, on the dissection of the subjects who had recovered from icterus,

only a short time before death took place from other diseases, I could not discover appearances in the liver, which enabled me to fix on any circumscribed spot as having probably been recently inflamed. But in the course of dissections, I found that infiltration of coagulable lymph sometimes takes place, into the cellular structure of the capsule of Glisson. These circumstances induced me to pay particular attention to the state of the capsule of Glisson in making post mortem inspections.

In the beginning of this chapter, at page 234, I have already spoken of the structure and appearance of the absorbent glands, in the capsule of Glisson. The superior gland is sometimes very small, it is usually placed above the second curve of the cystic duct, and occasionally it is more closely attached to the side of the gall-bladder than to the duct. I have seen the cystic duct obliterated, where it was in contact with this gland, when in an enlarged and diseased state; but I do not apprehend that its closure could have any influence in the production of jaundice. The lower gland is more uniform in bulk, being usually half the size of a small bean; and it is always placed just at the commencement of the common biliary duct. The result of irritation within the sphere of absorbent vessels passing through this gland, would of course be liable to cause such degree of swelling, as might produce compression and transient closure of the common biliary duct; whereby the passage of bile into the intestine

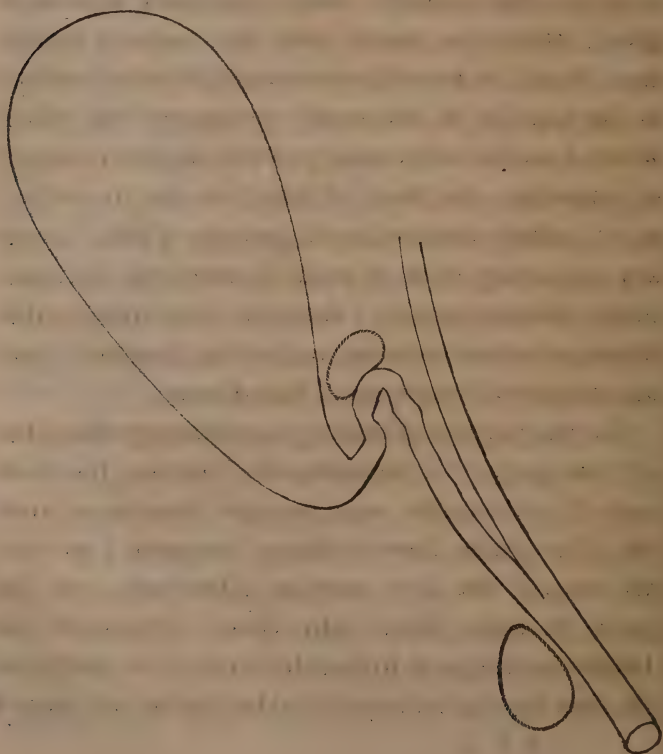
would be prevented, and in consequence of its absorption, jaundice will be produced. If the obstruction be complete, the patient's stools will be nearly white, or of very pale-grey color, until the decrease of the local tumefaction permits the bile again to flow into the intestine. It may be possible that when the enlargement of the gland begins to subside, as much bile may flow into the intestine as shall colour the stools, and still the common biliary duct may be partially compressed, so that the yellowness of the skin shall be prolonged. In cases of jaundice attended by ardent pyrexia, and intense gastro-enteritis; the color of the stools will very often be influenced by the quantity of blood poured out by the capillary vessels of the intestinal mucous membrane; as well as by other morbid secretions.

When previous inflammatory disease at the capsule of Glisson, has been attended with infiltration of coagulable lymph into the cellular structure of that part, at a remote period; and its subsequent absorption has left a degree of induration and constriction of the capsule, a very slight enlargement of the lower gland, will then effectually compress the common biliary duct; and I have seen its canal obliterated from that cause, exactly at the point of contact with the tumid and indurated gland. I have some morbid preparations, which leave little doubt as to the occasional influence of the induration with enlargement of this gland, in obstructing the flow of bile, and in keeping up disease.

When we observe the situation of the lower gland, close by the ductus communis, it is evident that temporary compression of that duct may be caused whenever the gland becomes swollen, either from the effects of inflammation on some adjacent part, or from the patient's exposure to cold, which is not an uncommon cause of jaundice, especially in those cases where the disease is of but transient duration. Unhealthy and leucophlegmatic subjects are liable to more permanent glandular induration, and in that description of persons, jaundice is usually very obstinate and protracted. It has appeared to me, that the jaundice dependent on slight but acute inflammatory affections of the gland near the common duct, is usually marked by a degree of morbid sensibility on pressure over the region of the capsule of Glisson, the pain at that part gradually increasing, and sometimes being attended by pyrexia, or nausea, or by both those symptoms: the jaundice, though not very intense at first, gradually increases, and occasionally the color of the stools affords reason for believing that a portion of the bile passes into the intestine.

The distribution of the absorbent glands in every part of the body, is liable to occasional variation: consequently, instead of two glands, in some subjects, a chain of glands will be found by the side of the biliary ducts. It appears to me very probable, that jaundice is occasionally caused by inflammation and swelling of the lower gland in the capsule of Glisson; and that a degree of compression on the ducts suffi-

ent to produce complete obstruction to the transit of bile into the intestine during life, might not prevent an anatomist from pushing a small flexible wax bougie along the ducts after death ; which might lead to the erroneous conclusion, that the duct had been pervious, and thus prevent such accurate dissection as would have shown the actual cause of the obstruction. For the purpose of facilitating the inquiries of those who may be inclined carefully to dissect these parts, so as to form their own opinions ; I have annexed an outline, which may serve better than a



verbal description, to direct their investigations with precision. The lower and larger gland, being placed close above the head of the pancreas ; may, while in its healthy state, be mistaken on a transient inspection, for a part of that organ : but, in color, structure, and appearance, it is totally different from the firm, small-lobulated, or granular structure of the pancreas. I believe that jaundice has not been heretofore ascribed to a diseased state of absorbent glands, and am therefore unwilling to place any undue emphasis on the importance of the observations yet made on this subject. But if the lower absorbent gland, which is placed near the common biliary duct, should be proved, on more ample investigation, to be capable of frequently producing the effects which I ascribe to it ; namely, while slightly enlarged of impeding the flow of bile into the intestine ; or, of entirely obstructing the passage of bile, during any temporary state of more considerable intumescence : this fact would, I conceive, have considerable influence on our opinions concerning jaundice ; and on our general treatment of that disease.

For the purpose of making a satisfactory dissection of these parts, it is requisite, after opening the chest and abdomen in the usual manner, to saw or break the ribs within three inches of the spine ; so that the edge of the liver may be tilted back, and the parts brought fairly into view. Whenever the biliary ducts appear to be obliterated ; that portion of the liver to which the gall-bladder is attached, should

be cut out, together with the capsule of Glisson and duodenum: that the ulterior stages of the dissection may be deliberately conducted on a table.

When the minute anatomy of the capsule of Glisson, and its importance in reference to pathology first occupied my attention, I was not certain that the glands now described were always uniformly so situated with respect to the biliary ducts, that inflammation and swelling of these parts should of necessity impede the free passage of the bile. Consequently I was obliged carefully to dissect a great number of subjects for the purpose of ascertaining that fact. It was only when the last sheets of the former edition of this work were in the press, that Cloquet's splendid 4to work on Anatomy, reached Bengal, and I had the gratification of finding that it afforded complete support to my views, proving the relative position of the absorbent glands in the capsule of Glisson, to be correctly indicated by the diagram which I had given. The correctness of the pathological inferences, is substantiated by many cases which have occurred in various parts of the world since the first edition of this work was finished, and by some publications which have recently come to my hands.

I can at this moment refer to a case published by Mr. A. K. Lindesay, at page 92 in the 7th volume of the Transactions of the Medical and Physical Society of Calcutta: the patient had suffered from intermittent fever with icteroid symptoms, and he

died of apoplexy in June, 1833. On dissection, the glands in the capsule of Glisson were found enlarged and diseased.

A case of ardent fever with jaundice, is reported in Dr. D. Stewart's paper, read at the meeting of the Medical Society on the 6th of September, 1834, and on post-mortem examination, the lower gland in the capsule of Glisson was found inflamed and enlarged, and was doubtless, in that case, the cause of jaundice, by obstructing the free flow of bile through the ductus communis.

Mr. G. Jones has published a case at page 749, of the *Lancet* of the 8th February, 1834. A boy aged 9 years, had typhus fever, of which he recovered, but subsequently died of over-distention of the gall-bladder with bile, caused by obliteration of the passage of the ductus communis choledochus, produced by the pressure of an inflamed gland. The gall-bladder contained 12 ounces of bile.

On referring to the translation of Andral's *Pathological Anatomy*, by Drs. Townsend and West, a copy of which has recently been received here, I find at page 457 of vol. ii. the author states that the lymphatic ganglions when enlarged, may by their mechanical pressure give rise to a variety of morbid phenomena, among which he states that "when those diseased ganglia are accumulated round the hepatic duct, they compress its parietes, the bile no longer flows into the duodenum, and jaundice ensues."

Before deciding what plan of treatment may be proper, in any case of jaundice; we should carefully inquire into the state of the general health, and the nature and duration of the diseases from which the patient may have recently suffered; we ought also accurately to ascertain the state of the abdominal viscera. If the liver be found enlarged and indurated, either generally, or in part, there would be no doubt of the most proper plan of treatment to be ordered: and the employment of our remedies, would be directed by considerations dependent on the state of that organ, and on the condition of the constitution. Calomel with active purgatives, and depletion by V. S. and leeches, are the best means of subduing local inflammation, and removing many of its consequences, in cases of jaundice, where hepatitis exists, and the bile can pass into the intestine.

In other cases of intense jaundice, without enlargement of the liver, but with the usual circumscribed pain in the region of the gall-bladder and ducts, the pain having come on gradually, being unattended with paroxysms of excruciating agony, but being increased by pressure, the stools being nearly white, or of a pale clay-color: I would advise a treatment essentially antiphlogistic; because I find the cases so treated, are cured easily, and by one series of remedies; while cases such as are above alluded to, which either do not seem urgently to require depletion, or from any particular reason, are treated by other means, have tardy and imperfect

recoveries, and frequent relapses. So that I am always sorry to see patients suffering from jaundice combined with circumstances which forbid depletion, as I have but little confidence in other modes of treatment. The most successful plan of cure, is a steady and undeviating line of practice, consisting principally of depletion by V. S., leeches, active purgatives, tepid baths, and sudorifics; aided by low diet, and quiescence, in the beginning of the disease: followed by milder purgatives, and a small blister over the region of the gall-bladder, kept open for a long time. At more remote periods, when recovery is far advanced, a course of Cheltenham salts; or small doses of rhubarb and sal polychrest, (from six to 10 grains of each, every morning;) with gentle exercise; and frictions with camphorated oil, or lard and camphor, over the right hypochondrium, should be advised: at the same time it may be proper to allow a mild diet, void of stimuli, in such quantity as may improve the strength.

In any case of jaundice, where the stools are *white, or of very pale-grey color*, the employment of mercurials is of doubtful propriety*; since we

* Dr. Cheyne's experience favours the same conclusion;—he says—"In large establishments for the cure of venereal complaints, jaundice not unfrequently appears during courses of mercury: and if the mercurial is not laid aside, and purgatives given, and the antiphlogistic regimen adopted, a new and alarming series of symptoms is apt to arise; the brain becomes affected; the patient becomes at first frantic, and then falls into a state of coma."

have evidence of the abundant secretion of bile, which is absorbed, so that its color is visible in the eyes, urine, and skin: at the same time that we have reason to believe its transit along the common duct into the intestine, is obstructed. Mercury with a view of exciting biliary secretion, in such cases, would be as unreasonable as the administration of diuretics to a man with a distended bladder, and whose perspiration had an urinous odor, shewing that urine was freely secreted, and absorbed into the system; while we knew that he had an impervious stricture of the urethra.

CASE LXXIV.—A delicate lad named W. Mac Crith, 17 years of age, was sent to the General Hospital on the 6th of March, 1834, for the cure of jaundice of four days' duration. This lad had been only eight weeks in Bengal, and had been suffering for fourteen days with a bubo in the groin, for which he had been salivated by mercurial ointment, and the jaundice had appeared at the time that he was using the mercury. On admission, his skin, eyes, and urine were of a saffron color; he had slight pyrexia, and a hot forehead. His mouth was still very sore, and the ptyalism free. The color of his stools indicated that a small proportion of the bile continued to flow into the intestine. The muscles of the abdomen were tense, and some fulness existed in the region of the gall-bladder. He was bled from the arm twice, to the amount of $\frac{3}{4}$ xii. and $\frac{3}{4}$ viii.; leeches were repeatedly applied to the epigastrium, and region

of the gall-bladder, purgatives and antimonials were administered; the tepid bath was used, and he was desired to live on tea and bread. As the flow of bile into the intestine was not entirely obstructed, I did not hesitate, in this case to order some mercury in aid of the antiphlogistic treatment, after the second bleeding, and when the salivation had subsided. The jaundice had disappeared on the 22nd of March, after which no treatment was requisite, except mild aperients, tepid bath, and increased diet. He was discharged well on the 2nd of April, 1834.

I have treated many cases of jaundice, in which the stools were of a very pale-grey, or whitish color, by V. S., leeches, purgatives, sudorifics, and the tepid bath, aided by low diet and quiescence: the cures in those cases have been permanent, and as expeditious as when mercury has been employed.

I would be sorry to recommend indiscriminate blood-letting, for the cure of the jaundice of those old residents in India, who may have broken constitutions, pale faces, and œdematous feet: most of these must die, if they do not remove to a better climate than Bengal. I fear we cannot well promise that many patients of this sort, will recover anywhere, if the disease be of long duration.

As far as my present investigations regarding the pathology and treatment of jaundice, will enable me to judge; I should be inclined to ascribe that disease more rarely to biliary concretions, than has

been usual of late years by many authors: and I doubt much, the propriety of very frequent recourse to opiates, on the occurrence of acute pain in the course of the biliary ducts; except in cases which afford tolerably distinct evidence of the existence of biliary calculi.

We see some cases in which persons previously in good health, are suddenly seized with paroxysms of very acute pain in the region of the biliary ducts, quickly followed by intense jaundice, at the same time, that the stools become of a pale-grey, or whitish color; attended with little pyrexia, and but little acceleration of the pulse; after which, the pain abruptly ceases: subsequent to this train of symptoms, biliary concretions are frequently found in the stools, and the yellowness of the skin and eyes disappears in a short time. We can have but little doubt in ascribing the jaundice, in such cases, to the difficult passage of gall stones along the common biliary duct. The train of symptoms which occurs in cases of this sort, is sufficiently distinct from those detailed at pages 372 and 374, as usually indicating some inflammatory affection of the absorbent glands in the capsule of Glisson.

ICTERUS occurs occasionally in Bengal, in infants soon after birth, to a very intense degree; the deep-orange color of the eyes, skin, and urine, being in a majority of those cases very remarkable. The jaundiced tinge, has appeared from the 2nd to the 13th day after the birth of the children. In all

the cases of infantile jaundice, which have been under my care in this country, the color of the stools, though much paler than natural, has evinced the presence of some bile; which shewed that the ducts were not impervious; and this fact, together with the fat and healthy appearance of those infants, justified a favorable prognosis. All these young patients whom I have seen with this disease in Bengal, have recovered; happily precluding the occasion of ultimate pathological investigation, as to the local morbid condition connected with their malady.

It is remarkable, that almost all the jaundiced infants I have seen in India, had suffered much compression, and considerable alteration of the shape of the head; during labours that were rather severe, compared with what is usual in Bengal. In stating this fact, I do not aver that the compression of their brain, was the cause of the jaundice; nor that the disease always occurs in this country, when the shape of the child's head has been much altered during labor.

The treatment which I have pursued in infantile jaundice, there being some bilious appearance in the stools, was to give Calomel gr. i.—Pulv. Scammoneæ Comp. (Ph. Ed.) gr. ij.—Pulv. Jalap. Comp. gr. iv. every morning, for four days; and then, after an interval of two days, to repeat the powders for four days more: giving a small dose of castor oil every 2d afternoon, and omitting the jalap if the purging

should be too frequent, or the evacuations very watery. While this treatment is pursued, the child's belly, and the hypochondria, are ordered to be rubbed daily with warm oil. A tepid bath twice a day is useful.

LIVER DISEASE IN ASIATICS.

ACUTE liver disease, terminating in abscess, is exceedingly rare among Asiatics* ; nevertheless natives of Bengal are not entirely exempt from these complaints. It is also remarkable how seldom we find any palpable disease of the liver of Asiatics, attending the fevers, and dysentery of Bengal. During my residence in this country, I have only seen two well-marked cases of acute hepatitis in natives. One of these was a Mahommedan servant of my own, not remarkable for his temperance either in meat or drink. He is rather a slight made but firm and sinewy man, who was attacked with acute pain in the right side, and distinct enlargement of the liver. He had been indulging more than usual in drink, and had the appearance of ill health ; but had no sort of tremor as if from great excess in the use of

* Staff Surgeon Marshall speaks of having found abscess of the liver in Asiatics who were serving with the army in Ceylon. He also found abscess of the liver in Africans. He records the names and particulars concerning the hepatic abscesses in four Africans, and three natives of India who were among his military patients in Ceylon, in 1819 and 1820.

spirits, and there was very little pyrexia, when the disease appeared, in November, 1831. He was made to remain in tranquillity, and to live on sago, soojee, (thin flour porridge,) and *khooe* with water. Six leeches were applied over the region of the liver, daily, for five days. Four grains of calomel, and ten grains of compound extract of colocynth, were given every night; and a jalap purge every morning. After the leeches were omitted, he was made to take a dose of castor oil daily for a week, and the same low diet was continued. This man recovered, and remains tolerably well, but has not since acquired his former stoutness.

The other case, was a Hindoo *Kalasse*, a short and rather stout man, whose duty was to pitch the tents: his illness commenced in November, 1823, when on the march in the Upper Provinces. The enlargement of the liver was very distinct; and pain on pressing the right side acute, but there was scarcely any pyrexia, or constitutional disorder. He ascribed the commencement of his illness to a recent injury, in raising the large tents; but from the slight constitutional disorder, I suspected that the disease was of longer duration. He had six leeches applied once, and took six grains of blue pill, with 12 grains of colocynth, daily, for four days; and the liver was decidedly decreasing: but he disliked the repeated purgative, and refused to follow any farther medical treatment. This man remained with the camp, and had but indifferent health. In February, 1824,

he died of tetanus ; which appeared to me to have arisen from cold, though his relatives ascribed it to a very trivial scratch on the top of the left foot. I could not get leave to inspect the body.

Since the first edition of this work was published, Mr. Henderson was requested to examine the body of a *mehtur*, a low caste Hindoo, who had died suddenly, and it was supposed by poison. Two small abscesses of the liver were found, but there was no indication of the man having taken poison. Chronic induration of the liver is not very uncommon in old cachectic subjects ; and jaundice is frequently met with at some seasons, attending the fevers of natives, for some account of which affection, refer to the chapter on Fevers in vol. ii. of this work.

CHAPTER IV.

DISEASES OF THE SPLEEN.

THE diseases of the spleen which occur most frequently in this country, are the *vascular engorgement* which usually comes on suddenly in the course of fevers, but sometimes appears unattended by pyrexia ; and depends, as its name implies, on inordinate accumulation of blood in the vessels and cells of the spleen : it seldom takes place to a great extent, or continues long, without being attended with a very remarkable train of constitutional symptoms, which will be detailed presently. Next to this in frequency is the *indurated spleen*, it might perhaps be denominated hypertrophy, being a more permanent enlargement, depending partly on accumulation of blood in the spleen, and partly on a change of structure in the interior of that organ, the result of internal subacute inflammation, whereby the parietes of the cells becomes thickened and indurated, and the contractile property of the spleen is diminished or destroyed. This modification of disease frequently follows the vascular engorgement. Both these conditions of the spleen are occasionally attended with symptoms of inflammation. I have never yet ascertained that abscess or suppuration has taken

place in the spleen of any patient that I have seen in this country. The greater number of cases of the affections above described, are unattended with acute inflammation; although there is almost always morbid sensibility on pressure being made over the left hypochondrium, during the early stages of enlarged spleen; and sometimes slight pressure over that part causes exquisite pain.

Splenitis, or acute inflammation of the peritoneal coat of the spleen, is a rare disease in any country; it sometimes exists without much enlargement of the organ, and then the symptoms very much resemble pleuritis of the left side: doubtless splenitis is occasionally cured, by the antiphlogistic treatment pursued, when pleuritis is supposed to exist. We do sometimes, in dissection, meet with opaque patches on the peritoneal coat of the spleen, and adhesions of that organ to adjacent parts, in subjects in whom no disease of that part had been recognised during life; and I am disposed to concur with the opinion of the older medical writers, who state, that some cases of cough with pain in the left side usually considered as pleuritic are dependent on acute inflammation of the peritoneal coat of the spleen, and therefore a true splenitis may occur, without that disease being detected. See Vogel's *Prælectiones*, vol. i. p. 163; Fordyce, Bonetus, Crendal, and Juncker, are also of the same opinion. Morgagni seems to consider scirrhus of the spleen liable to be followed by pneumonia. *Epist.* 20, *Sect.* 52, Cases 2 and 30. Of all

Nosologists, Sagar has given the most accurate definition and diagnosis of Splenitis, as that disease actually occurs, whether we regard the local, or the constitutional symptoms.

Diseases of the spleen may be deemed important, not only by reason of their frequency, and the severity, and danger with which they are attended in Bengal ; but on account of the change which the constitution undergoes previous to their origin, and during their existence : and in consequence of the modifications which they produce in the nature and tendency of other diseases, that may occur at the same time. Instead of stating the enlargement of the spleen, as the principal object for investigation ; it will be consistent with a correct view of the various modifications of the disease now under consideration, to speak of the enlargement of the spleen, as one of the phenomena usually attendant on a peculiar description of constitutional disorder. The characteristic symptoms of this disorder are the early accession of general debility, paleness, and a deficiency of red blood in the capillary system of vessels, which is most remarkable in the pale and bloodless aspect of the conjunctivæ, hectic blueness or pearl color of the scleroticæ, and chlorotic discoloration of the visage, tongue, and gums. At advanced stages of the disease the circulation is generally languid, and the extremities are apt to become cold ; the skin pale, shrivelled, and arid. In the chronic disease, affect-

ing emaciated subjects, we often find a dry furfuraeous desquamation of the cuticle.

We sometimes see a chronic enlargement of the spleen, in adults of pale, sallow, and unhealthy aspect, who eat and drink as they did in health, and seem to endure the disease for many months without much suffering, except the inconvenience of a tumid belly, attended with shortness of breath, and occasional returns of indistinct ague. The disease is far more distressing to children, in whom, if careful attention to diet, and correct medical treatment be omitted, the enlargement of the spleen, and corresponding decay of the general health, are in most cases progressive, and they sink into a state of marasmus. In fact, a person who has arrived at a mature growth and strength, may exist for a while with a degree of induration and enlargement of the spleen, which is incompatible with growth, or even with the continuance of life in those below the age of puberty ; for we find that children with this disease, soon become poor, languid, weakly creatures ; whose breath and the exhalation from their bodies, have a nauseous, sickly odor, indicative of the unsound state of their constitutions. Enlargement of the spleen is not peculiar to the natives of this country, nor is it confined to the poorer order of Europeans. I have observed the disease in its severest form to come on after Fevers, affecting the children of wealthy Europeans, who lived in every comfort, and were attended with the greatest care. It is not unfrequently

accompanied in such patients, by the extreme degree of constitutional disorder, which marks its advanced stages in the poorer classes of natives.

Females affected with enlargement of the spleen, are liable to suffer from amenorrhœa; and cases of spleen disease, in which menstruation is not obstructed, may for the most part be considered as having a favorable prospect of recovery.

During the continuance of vascular engorgement of the spleen, patients are very prone to foul sloughing ulcers, from slight wounds or bruises. When local inflammations or ulcers exist, in patients who are suffering from the severer degrees of spleen disease, those peculiar characters of active inflammation, and that healthy constitutional energy, on which the deposition of coagulable lymph depends; and by which we find injuries repaired, and the extension of ulceration, as well as the progress of sloughing arrested, on ordinary occasions, seem to be in great measure, if not entirely subverted.

Blood drawn from veins of patients suffering from splenic cachexia, varies much in appearance: sometimes it coagulates imperfectly, and no serum is separated; in other cases the cruor is black and soft, and after being exposed to the air, its surface does not generally assume that more florid color, which we observe on the top of a coagulum of blood drawn from the vein of a healthy person; and it seldom exhibits a buffy coat, except when ardent pyrexia is present, or when the disease is attended with acute pain in

the side. The serum when heated, coagulates as firmly as that of a healthy person, but the coagulum is more friable, and less tough, and it frequently has a slightly yellowish appearance: sometimes it has a greenish color.

During the vascular engorgement of the spleen, several of the characteristics of scorbutus are present: there is a tendency to hæmorrhage from slight causes or injuries; leech-bites, blisters, and issues occasionally ulcerate during the rainy season; and at times the slightest ulcerations are apt to slough. Foul gangrenous ulcers of the lips and gums are liable to form in consequence of slight local irritation, (and often without any obvious cause,) whereby the jaw-bones become carious, and exfoliate, and the teeth fall out. Hæmoptysis, as well as hæmatemesis, occasionally occur when the spleen is very large; and probably the blood which is vomited, sometimes flows into the stomach from vessels communicating directly with the splenic vein, as the intumescence of the spleen has been observed in some cases to be immediately reduced by these evacuations of blood. Profuse hæmorrhages from the lungs, or stomach, sometimes suddenly destroy life: but we see other cases, in which the functions of the system not having been much disordered previously, the patients recover quickly after these profuse losses of blood, the enlargement of the spleen for the time subsides; and the disease is thus entirely cured. The results of these spontaneous hæmorrhages should not be for-

gotten, in deciding on our plans of treatment in ordinary cases of spleen disease.

Most patients, labouring under enlargement of the spleen, are affected with a short and imperfect respiration; the general appearance of the patient, evincing that decarbonisation of the blood is inefficiently accomplished: and any attempt to take active exercise excites panting and distress at the chest. Among the usual attendants on vascular engorgement of the spleen, we may observe impaired appetite, difficult digestion, and imperfect assimilation of the food: in a few instances there is morbid craving for food. There is generally despondency, and depression of spirits, inactivity of body, and torpor of mind, with much muscular debility: and this latter symptom is remarkable, although the patients be not much emaciated.

When active pyrexia is not present, the urine is pale, often copious. In the latter stages of the disease, oedema of the feet is present, and sometimes the face and eyelids are swollen. The majority of protracted cases that terminate fatally, suffer from dysentery, or dropsy of the belly; and when the abdomen is much distended from this latter cause, the superficial veins on the side of the chest and belly, appear large and numerous; shewing the extent, and degree, to which the circulation in internal organs becomes ultimately obstructed. The danger of a dysenteric attack, when a patient is labouring under spleen disease, has been remarked by Hippocrates in

Book vi. Aphorism 43. He was at the same time aware, that a free action of the bowels tended to reduce a tumid spleen, see Book vi. Aphorism 48. The same opinion was held by Celsus, Lib. ii. cap. 8.

The tumefaction of the spleen occasionally comes on very suddenly, in the course of remittent and intermittent fevers, in Bengal, and in almost all the low and marshy districts in India, whether they be at the mouths of rivers, or the *terhai* (marshes) at the foot of mountains in the interior of the country. The tumid spleen often takes place so suddenly, that in a few days it can be seen as well as felt, extending far below the cartilages of the left false ribs. The degree of enlargement which occurs, is variable ; it is very common to see the spleen extending downwards on a level with the navel, and laterally, from its usual situation, as far as half way between the cartilages of the ribs and umbilicus. In extreme cases, the diseased spleen fills more than half the belly, extending to the right of the navel, while its lower extremity reaches the left iliac region. Several cases of this enormous tumefaction, may be seen every year in Calcutta ; and some of them recover.

The progress of vascular engorgement of the spleen is more or less rapid, according to the injury which the constitution may have suffered from damp climate, and the nature and duration of the fevers with which the patient may have been recently affected.

Enlargement of the spleen sometimes appears as an idiopathic disease in children, and in persons of delicate and feeble constitution ; and is produced by the combined influence of a damp climate, variable temperature, want of exercise, unsuitable clothing, and insufficient nourishment. During the slow and silent influence of long continued grief and distress of mind, the secretions generally appear to be perverted, the cutaneous circulation becomes languid, healthy transpiration obstructed, and then we often find enlargement of the spleen take place in Bengal. The disease when dependent on such causes is always difficult to cure.

The most part of the cases of vascular engorgement of the spleen in this country, follow intermittent and remittent fevers* : and tumid spleen may be stated as the most invariable consequence of acute and debilitating diseases, among children of weak constitutions in Bengal. The same sort of enlargement takes place here in the spleen of adults,

* Tumid spleen is found frequently to follow intermittent and remittent fevers in all low and damp countries ; and the same morbid affection, occurs occasionally, after protracted fevers in every part of the world. The following references may indicate the frequency of spleen disease, as a sequel of fevers in some parts of Europe.

“ Pauci sunt quartana recidiva diu afflicti, qui hanc splenalgiam non patiantur.” *Sauvages*, vol. i. p. 111.

“ Sic etiam lienis infarctum post omnem febrem chronicam, præcipuè quartanam, in Hungaria constanter observari, leges apud Cl. Kramerum.” *Morgagni Epist.* 20. *Art.* 52.

in consequence of various debilitating diseases, but more especially after protracted remittent and intermittent fevers, which we occasionally meet with at all seasons ; but they are seen in their worst forms about the latter end of the rains, and commencement of the cold season ; just when concentrated exhalation, and considerable diurnal changes of temperature coexist, which repress the action of the skin, and force the circulating fluids on the internal organs of the body. At that season of the year congestive fevers are frequent, and very often fatal, at many of the low and damp situations in these tropical regions. These fevers prevail not only in the country forming the delta of great rivers, but in the marshy situations at the foot of hills and mountains, where the soil is composed of alluvion and vegetable remains, washed from the neighbouring hills, into situations where there is no drainage, and an imperfect ventilation. The assemblage of constitutional symptoms described in the foregoing pages, constitutes *the endemic cachexia of those tropical countries that are subject to paludal exhalations*. The enlargement of the spleen is the most frequent attendant on this cachexia ; and its increase, or subsidence, generally corresponds with the unfavorable or favorable changes which are taking place in the constitution.

It is however proper to observe here, that the constitutional symptoms sometimes exist in a very marked degree, where neither enlargement, nor

morbid sensibility of the organ itself, are very palpable. On comparing the above account of spleen diseases, with other maladies; we will be able to observe that the disorders most closely allied to *Splenic Cachexia*, are, Chlorosis, Scorbutus, and some species of Anæmia. The parallel of these diseases is so strongly marked, that I am surprised it should not have been generally noticed: the morbid condition of the blood is somewhat similar, the progress of the local inflammations is analogous, ulcers which occur during these diseases, are alike difficult to manage; and similar remedies are in many cases found useful in these complaints.

On dissection of subjects in which disease of the spleen has terminated fatally, we find a considerable variety in the morbid appearances of that organ, which may be described under the following heads: the most frequent diseased appearances being placed first in order.

1.—A soft rounded enlargement of the spleen, the texture less firm than in the healthy state, and easily broken if the finger be pushed abruptly against it. In some cases the part is so much softened, that it resembles a great clot of blood wrapped in a thin membrane: this varies in color, from black to brown or blue; and in the extreme degree of softening, when we attempt to lift the tumid spleen, the fingers are thrust through the membrane, and the organ breaks down in the hands, becoming a putrid gore. This soft globular enlargement from vascular

engorgement of the spleen, most commonly attends, or follows, the severe remittent fever of the rains and cold season ; when that disease attacks weak and unhealthy young persons.

2.—Oblong enlargement of the spleen ; the organ being more firm in texture than in its natural state, its edge thin and notched ; the color being sometimes a pale brown, though more generally a dusky red. This morbid change of structure would appear to be the result of more slow and gradual degeneration, which in its earlier stages has probably been attended with some inflammatory condition of the internal structure of the spleen : in such cases we also find evidence of superficial inflammation, attended with adhesions to adjacent parts, more frequently than in the rounded enlargement from simple vascular engorgement.

3.—Opaque patches of various sizes : some of these extend over half the convex surface of the spleen, and are nearly $\frac{1}{8}$ th of an inch thick ; they may be deemed the result of albuminous depositions during superficial inflammation.

4.—Adhesions of the peritoneal coat of the spleen to contiguous viscera ; which adhesions are by no means a general result of tumid spleen in Bengal.

5.—In a few old cases, we find a more indurated friable spleen, that breaks when handled without much force, like a piece of old moist cheese.

6.—Still more rare is the firmer induration intersected with septa of condensed fibrous structure, to which we give the name of scirrhus.

7.—Tubercles of various sizes, generally small, and of grey or brown color.

8.—An organised coagulum in the splenic vein.

9.—Encysted tumors.

10.—Abscess of the spleen is said occasionally to occur: but I have not yet seen an example of suppuration in the spleen, in Bengal.

The four last-mentioned morbid appearances, are exceedingly rare in this part of India.

Besides the above appearances of disease, we sometimes see an uniform opaque-white, or milky color of the peritoneal coat of the spleen; which tunic is unusually tough, like a thin bladder that had been dried and afterwards wetted in hot-water; the substance of the spleen being soft and flexible. This has been observed in the post-mortem inspection of several persons who had been long subject to agues. In patients who have suffered from spleen disease, and are destroyed by a purging, numerous small ulcers are found on the internal membrane of the great intestines, while the peritoneal coat appears either quite healthy, or paler than usual: the mesenteric glands in such subjects are often enlarged.

Our treatment of the early stage of enlargement of the spleen must depend much on the nature of the co-existent pyrexia, and the degree of morbid sensibility when pressure is made over the left hypochondrium; as well as the other symptoms that may be present, indicative of local inflammation. We would also be much guided by the degree of

plethora, and general condition of the patient. As a general plan of treatment for Europeans, those adult subjects who are not much reduced in strength, must be bled from the arm, and have from four to 10 leeches applied over the region of the spleen every second day, for a fortnight. Should there be pyrexia, the V. S. may be repeated once or oftener; the blood should always be taken while the patient is in the recumbent posture, and it is seldom requisite to take more than one pound of blood at a time from an adult. In all cases where fever exists, or V. S. is requisite, I have found much benefit from directing a purgative of compound powder of jalap; or of scammony, with cream of tartar, and a grain of camboage; to be repeated for two or three days, before the sulphate of iron was administered in combination with the bitters and purgatives as above directed.

The treatment found most useful, in that modification of enlarged spleen, which consists in vascular engorgement of the organ; is, perseverance in a course of purgative medicines, combined with bitters, and some preparation of iron*; of which, small doses

* The efficacy of bitters with some preparation of iron in spleen disease is well known. See Magnatus Thesaurus de Materia Medica, vol. ii. page 901, where various prescriptions of purgatives, combined with preparations of iron, will be met with.

And in Pinel, we find the following observation: Mais le fer paraît agir d'une manière plus spéciale sur la rate, non seulement il paraît propre à prévenir l'augmentation du volume de cet organe,

of the sulphas ferri appear to be the most efficacious. My usual formula, for cases where there is not much pyrexia, is,

R. Pulv. Jalap.—Pulv. Rhei—Pulv. Calumbæ—
Pulv. Zingiberis—Potassæ Supertartratis, āā ʒ i.
Ferri Sulphatis, ʒ ss.—Tinct. Sennæ, ʒ iv.
Aquæ Menthæ Sativæ ʒx. misce.

This prescription is called the *Spleen Mixture*. The dose is one ounce and a half for an adult, at 6 A. M., and repeated at 11 A. M., daily. For children, the doses are regulated so as to produce not less than three, and not more than four, stools daily. This medicine acts as a purgative, tonic, and diuretic. The purgative properties of the two first articles in this prescription, will be assisted by the cream of tartar ; while that medicine with the jalap, generally act on the kidneys : the principal effects of the other ingredients may be referred to their tonic and astringent properties. The cure of the enlarged spleen may probably be in some measure owing to the effects produced on the circulation in that organ, by the frequent application of a powerful astringent to its immediate vicinity : the natives of this country are decidedly of that opinion ; for on administering remedies containing sulphate of iron, in spleen disease

Mais encore à le reduire quand il a été augmente.—Pinel Nosographie Philosophique, vol. iii. p. 547.

Celsus says : Potui vero jejuno dari debet absinthium aquæ incoctum, et post cibum aqua a ferrario fabro, in qua candens ferrum subinde tinctum sit.—Celsus, l. iv., c. 1, section 5.

the patient is commonly directed to lie on the left side, that the medicine may flow to that part of the stomach in contact with the spleen. I have formerly used the above prescription, with treble the proportion of sulph. ferri now directed ; and on dissection of some young subjects, who came under my care in an advanced and desperate stage of the malady, and who died of the diseased spleen, while taking the mixture with the larger proportion of sulphate of iron, I found the stomach quite white, and exceedingly contracted ; more resembling a man's thumb than a young child's stomach. I now consider the smaller quantity of sulph. ferri more proper for ordinary cases ; and sometimes add 3 i. of Pulv. Scammon. Comp. to the above mixture, for patients who from being very costive require stronger purgatives. On the other hand, in very delicate and emaciated subjects who are easily purged, it is requisite to substitute compound tincture of cardamoms, for tincture of senna ; and if there be any disposition to paroxysms of intermittent fever, I add to the mixture, the same quantity of sulphate of quinine as it contains of sulphate of iron.

When the disease is obstinate, there is an advantage in changing the prescription occasionally ; and after the above has been used for 10 days, the patient, if an adult, is directed to take eight grains of compound extract of colocynth, with two grains of camboge, in pills, at bed-time ; and 20 drops of Tinct. Ferri Muriat. in a wine-glass of water, with 3 i. of

Tinct. Gentian. Comp. at 7, and repeated at 11 A. M. These medicines are to be continued for five days, and then, after taking the spleen mixture for 10 days more, the patient is ordered to take 3 ss. of the powder of Myrobalan*, with 3 ss. of Black Salt, every morning; and eight grains of compound extract of colocynth, with two grains of sulphate of iron, and two grains of aloes, in pills, at bed-time. Thus, for two-thirds of the time the patient is taking the spleen mixture; with the occasional change to another medicine for a short interval, whereby the efficacy of the principal remedy is not weakened by

* The Myrobalan now alluded to, is known in the Bazars by the name of *Jungheia Haritakee*, or *Zungi Hur*. It is the small, black, withered, and dried, half-grown fruit of the *Terminalia Chebula*: it is a mild and rather warm purgative, which is tolerably certain in its effects as an aperient, and possesses very considerable tonic properties. It has been found useful in some chronic visceral diseases attended with debility, where mercury did not act favourably. This article of *Materia Medica* is mentioned in Pomet's work on drugs, but the accounts there given of the different varieties of Myrobalan are somewhat erroneous. It is surprising that a medicine with such useful properties should be so little employed in many of the *Cachexiæ* that prevail in low and damp situations in Europe.

One ounce of the Black Salt, or *Kala Nemuk*, of the Bazars, according to the analysis made by Accum in London, is composed of,

6 grains of black Oxyde of Iron.

14 grains of Sulphur.

12 grains of Muriate of Lime.

444 grains of Muriate of Soda: and there was a loss of four grains.—See *Asiatic Researches*, vol. xi. p. 193.

its habitual use. On omitting the more active purgatives the following prescription is often very useful in slight cases of enlarged spleen, unattended with pyrexia: it is Dr. R. J. Graves's formula for the removal of habitual constipation in patients for whom mercurials are liable to be injurious, and we meet with numerous cases of that sort, in many of the low and damp districts of Bengal. This prescription may be often advisable as a laxative for delicate, pale, and debilitated subjects, who are not labouring under any affection of the spleen: the carbonate of iron and sulphur are ordered in smaller proportions by Dr. Graves.

R. Confect. Sennæ \bar{z} ii.—Potassæ Supertartratis—
Ferri Carbonatis—Sulphuris Loti, āā \bar{z} i.

Syrup. Zingiberis \bar{z} iss. misce. A large tea-spoonful is given for a dose, at bed-time, and the quantity may be increased if requisite.

It cannot be of importance to adhere invariably to a precise number of days in using each prescription, but an occasional change is requisite; and at any time during the treatment, if the patient become feverish, the above medicines are omitted, a dose or two of jalap is given, and leeches are applied, or V. S. is employed. In a few cases we find enlarged spleen attended with cough, and the febrile stage of catarrh, and these cases are better treated for a few days by V. S., or leeches, purgatives, antimonials, and tepid bath, before we commence the mixture containing Sulphas Ferri.

In the treatment of diseases of the spleen, attention to the patient's diet is of the utmost importance. During the continuance of fever, the nature and quantity of food must be directed with reference to the degree of pyrexia, and to the symptoms of local inflammation that may exist. When patients who are not much reduced in strength, are suffering from the early stage of vascular engorgement of the spleen, and slight pyrexia occurs only occasionally, it is advisable that the medicine should be given twice a day, so as to operate freely three or four times; no meat should then be allowed; they must live on tea, bread, sago, gruel, and chicken broth or kid soup in very small quantity. But in the more chronic cases, where we must patiently wait for slower changes in the constitution, and the gradual removal of the enlargement of the spleen; the spleen mixture is given once daily, in the morning, and in such dose as to act less powerfully, only twice a day: it is then proper to allow some roasted or broiled meat, and curry. A small quantity of port wine and water, or beer, is also taken with benefit at dinner time, in most cases where meat can be allowed with propriety. In chronic cases of enlarged spleen, flannel should be worn next the skin during the cold and damp season; and in most cases, where no pyrexia is present, exercise conduces much to accelerate the cure.

Natives suffering under the early stage of spleen disease, attended with fever, live on barley-water, sago,

bread, and *khooe* or parched rice; but in more chronic forms of the disease, they may with safety be advised to eat their usual curry and rice. It seems generally admitted, that milk is improper food for patients laboring under disease of the spleen; and I am now quite satisfied that the prohibition of milk, is almost always justifiable. The native practitioners also prevent patients from eating fat, or oil; although castor oil is often administered by them as a purgative, and with great benefit.

Water which has been used for cooling heated iron at a blacksmith's forge, has been recommended as an auxiliary to other remedies employed in the cure of enlarged spleen. I have ordered it in some cases, at the time that purgatives were given, and apparently with benefit. This water is perfectly transparent, and if left exposed to the air for a short time after the iron has been cooled in it, there is scarcely any unpleasant odor or taste.

CASE LXXV.—Nusseveen, a Mahommedan child, aged 3 years, was brought to me on the 26th of June, 1831, suffering from fever of 11 days' duration. She was reported to have had an indistinct cold fit every second day about noon, but this was not the ordinary day of a paroxysm. The eyes were heavy and watery, the head was hot, the belly tumid and elastic, and the spleen large and rounded, so that it could be distinctly felt two fingers breadth below the cartilage of the left false ribs, and extending half way from the ribs to the umbilicus. The conjunctival linings

of the lower palpebræ were pale; the tongue was bloodless, moist, and coated with white mucus, through which the points of small red papillæ were evident; the feet were œdematous. Her appetite had ceased for several days, and the bowels were costive. Two leeches were applied over the spleen, and ʒ i. of compound powder of jalap was administered, which purged the child freely.

June 27th.—Blueness of the nails, and coldness of the hands came on at 10 A. M., but no distinct rigor; though the nose and ears were quite cold. Two more leeches were applied to the spleen; and the purgative was repeated as yesterday: it operated well.

June 28th.—The morbid heat of the head was much decreased, and the belly less tumid; but the size of spleen not altered. One leech was applied to the region of the spleen.

R. Pulv. Jalap.—Pulv. Rhei—Pulv. Calumb.
Pulv. Zingiberis—Potassæ Supertart. āā ʒ ss.
Ferri Sulphatis, gr. v.—Tinct. Sennæ ʒ i.
Aquæ Menth. Pip. ʒ v.—misce.
Half an ounce administered every morning.

June 29th.—No return of coldness this day.

One leech applied to the left side.

Mixture repeated daily.

July 3rd.—She is purged three or four times daily; the spleen is smaller, and œdema of the feet is removed; the tongue is less coated with mucus.

A dose of Castor Oil was given this day ; and the mixture repeated daily, afterwards.

July 8th.—The enlargement of the spleen has very nearly subsided, an appearance of health is restored, and her appetite is good : she was freely purged by a dose of compound jalap powder this day ; and the mixture was ordered to be repeated daily.

July 14th.—The patient is well. Medicine omitted.

This child was the daughter of one of my own servants. The leeches were applied in my house, and I know the medicine was faithfully administered.

CASE LXXVI.—Bannon, *Æt.* 26, a middle-sized man, of dark complexion, was received into the General Hospital, on the 19th of December, 1825. He had been ill above six weeks at Arracan, and was now landed on arrival from that place : his disease was at first continued fever, but for the last 18 days it has assumed the type of a quotidian intermittent. On admission, he was suffering from a constant state of pyrexia, and much debility, his countenance was sallow and bloated ; he complained of oppression at the chest, and cough ; the tongue was clean and moist, bowels said to be regular. The spleen was large, rounded, and extending far below the cartilages of the left false ribs.

Apply 10 leeches to the left hypochondrium, and let him have a tepid bath afterwards.

Two ounces of the Spleen Mixture, such as prescribed at page 405, were ordered to be taken three

times a day ; and ten drops of *Liquor Arsenicalis* were mixed with the first dose, daily.

December 24th.—The paroxysms of intermittent fever have ceased. He is sufficiently purged by the medicine. The arsenical solution was now omitted, but the spleen mixture was continued daily.

January 2nd, 1826.—He has been purged five times daily ; the enlargement of the spleen has subsided : he is still suffering from some oppression at the chest, and complains much of debility.

R. Decoct. *Cinchonæ* lb. i.

Sodæ Sulphatis ʒ i. misce.

Ordered to take one ounce three times a day.

Jan. 10th.—His bowels have been kept freely open by the above medicine, and his health is improved. Discharged.

I had an account of this man, 16 months after he left hospital ; and find that he had enjoyed tolerable health, with the exception of dyspnœa, which troubled him sometimes.

CASE LXXVII.—John O'Brien, a stout boy, three years of age, admitted into the General Hospital on the evening of the 10th of October, 1826. He was taken ill with fever on the 30th of September, and has had a paroxysm every second day since ; but there has been no rigor. The spleen is now very large and round, extending as low down as the navel ; there is morbid sensibility on pressure being made over the left hypochondrium ; the skin is dry, and his face is pale. He had a paroxysm of fever this day,

and has taken medicine in the morning, which has had no effect.

Enema Purg. statim.

October 11th.—He had two stools after the enema, and is now free from pyrexia.

R. Quininæ Sulphatis, gr. iv.

Aquæ Menthæ Pip. 3 iss.

Acid. Sulphuric. Dilut. gtt. vi.—misce.

Three drachms to be given, four times a day.

Oct. 12th.—He slept well, and his bowels were sufficiently moved by the enema. The sulphate of quinine was repeated; and in the afternoon he had one dose of six drachms of the spleen mixture, mentioned at page 405, which did not purge him; therefore a similar dose was given at 7 A. M., and repeated at 11 o'clock A. M., daily. By these means he was freely purged, and the enlargement of the spleen quickly subsided. He had no return of fever after the 12th, and was discharged well on the 19th of October. The tumefaction of the spleen having entirely subsided, the child had a healthy appearance.

This boy had resided in a house overlooking the broad ditch of Fort William, and his illness was ascribed to a noxious exhalation from the mud of the wet ditch, from which the water had been allowed to run off at the usual time of the year; and this patient was taken ill a few days afterwards. On recovery, O'Brien returned to the same residence, and was attacked on the 2nd of November with

tertian intermittent ; the cold stage of which was severe, and followed by a prolonged hot fit. The child had a pallid countenance, when the hot stage of ague was not actually present. The bowels had been allowed to become costive, and the enlargement of the spleen had again appeared. He was re-admitted into hospital on the 4th of November, 1826, in the evening. Active purgatives of compound powder of jalap and rhubarb were administered : and he took the spleen mixture in the dose of one ounce, once every day, and had one dose of two grains of sulphate of quinine, after coming to hospital. He had a paroxysm of ague on the 6th, and another on the 15th of November ; but there was some degree of pyrexia almost constantly present, for the first ten days.

He was discharged well on the 27th November. I had frequent opportunities of seeing this boy for four years afterwards ; and know that he became a robust active fellow, and his health during that period was always good ; his parents have removed to the upper provinces, and I have heard that he had no return of the disease since he left this place.

It is surprising to observe how quickly a very considerable enlargement of the spleen will take place, during the progress of intermittent and remittent fevers, in the lower provinces of Bengal ; this child had been only ill 12 days, when first admitted into hospital, with the great tumefaction of the spleen

above described. Enlargement and softening of the spleen may take place in a very short period, and without any previous febrile disease: the most remarkable instances of which are those reported in the cases of the epileptic patients, who died at Paris from a large quantity of Prussic Acid, which had been given by mistake. These unfortunate persons died in a few hours after taking the acid; and on their dissection, the spleen was found gorged with blood, soft, and pultaceous.

CASE LXXVIII.—On the 5th of December, 1830, I was consulted by a lady, who came to Calcutta, from above Rajhmahl. She was emaciated and pale; there was a livid circle round the eyelids, and the conjunctivæ were pale and bloodless: her skin was dry and cool; the feet slightly œdematous; tongue white and moist, but nearly clean; pulse 94, soft, and weak. The spleen was enlarged, being nearly the size of a child's head, round and very moveable, and rather lower down than a level with the umbilicus; it was very painful if pressed. The bowels were habitually costive. She was in the fifth month of her third pregnancy, and said that on the 9th of November, she had been attacked with slight fever, which at first appeared little more than a common cold; but after it had continued for 10 days, she found herself very drowsy and torpid during the whole forenoon of every second day; at the same time that she had slight head-ache, cold-

ness of the feet and hands, pains in the palms, and blueness of the nails, but never any actual shivering: these ailments had been followed about noon, by flushed face, watery eyes, and extreme thirst. On the alternate days, she was tolerably well; but had no appetite, and found herself becoming progressively weaker.

She was ordered to apply four leeches over the region of the spleen.

R. Infus. Gentian. Comp.—Infus. Sennæ, āā ʒ iv.

Magnesiae Sulphat. ʒ i.—Quininæ Sulphat. gr. viii.

Acid. Sulph. Aromat. ʒ ss.—Tinct. Sennæ ʒ ii. misce.

A wine-glassful to be taken immediately, and repeated at 6 A. M., daily.

December 6th.—At 10 A. M., her hands are cold, the nails blue, pulse 118; there is anxiety, and hurried respiration, but no rigor. She was purged twice freely yesterday: and took a dose of the above mixture at 6 this morning, which has operated four times scantily: the stools are of a dark-grey color, and watery.

Four leeches repeated over the region of the spleen.

Dec. 7th.—She feels comparatively well this day, had scarcely any pyrexia after the coldness yesterday, and is much better; but is miserably thin and weak: the spleen has not decreased.

The remainder of the mixture was taken this morning, and has purged her twice very freely.

Apply two leeches over the spleen.

Dec. 8th.—No chilliness this forenoon, and she

thinks herself better; morbid sensibility of the spleen much decreased, and the tumefaction is rather smaller.

R. Pulv. Jalap.—Pulv. Rhei—Pulv. Calumbæ—

Pulv. Zingiberis—Potassæ Supertart. āā 3 i.

Ferri Sulphatis—Quininæ Sulphat. āā 3 ss.

Tinct. Sennæ 3 i. Aquæ Anethi 3 x. misce.

Two table-spoonsful to be taken every morning early.

Dec. 22nd.—The above mixture has been continued daily, with the effect of operating on the bowels, twice a day. The tumefaction of the spleen has entirely subsided, and her health and strength are very much improved. There has been no return of coldness or fever since the last report, and her appetite is increased.

R. Pil. Rhei Comp.—Extract. Colocynth. Comp. āā

3 ss.

Olei Menthæ Sativæ, gtt. v. misce et divide in pil. x.

Two pills to be taken every night at bed-time.

R. Quininæ Sulphatis, 3 ss. Aquæ Fontis, 3 x.

Acid. Sulph. Aromat. 3 ss.

Tinct. Cardamom. Comp. 3 ii. misce.

Two table-spoonsful at 11 o'clock in the forenoon, every day.

January 10th.—She has now no complaint, except that a slight degree of debility remains; there is a return of circulation of red blood in the capillary vessels of the conjunctivæ, and the leucophlegmatic pallor of her visage has subsided. Bowels rather too free.

R. Decoct. Cinchonæ lb. j.—Tinct. Cinchonæ Comp. 3 ii.
Acid. Sulphuric. Aromat. 3 iss. misce.

A wine-glassful to be taken at 7 A. M., and at 12 daily.

This patient recovered excellent health.

CASE LXXIX.—Sperry, Æt. 38. Returned from Arracan, and was admitted into the General Hospital on the 15th of December, 1825. He states that he was at Arracan for eight months; during seven of which, he suffered from an intermittent fever, that returned every second day. The bowels are now costive; the spleen is enormously enlarged; and he is much debilitated.

Capiat Liquor. Arsenicalis gtt. x. bis quotidie.

R. Extract. Colocynth. Comp. gr. viii.

Pulv. Ipecacuanhæ—Camphoræ, aa gr. i. misce fiant pil. ii. quotidie mane sumendæ.

December 21st.—He has a return of ague daily; the left hypochondrium is very tense. The above medicine was now omitted, and spleen mixture given daily, at 7, 11, and 2 o'clock: the Liquor Arsenicalis gtt. xv. at bed-time.


January 2nd, 1826.—The enlargement of the spleen has entirely subsided. Ague has ceased; the bowels are free, tongue clean, and there is now no complaint except debility. Discharged.

As soon as the purgative mixture, with sulphate of iron, acted freely on the bowels; the swelling of the spleen subsided, and the ague ceased.

I had an account of this man's condition, 16 months after he left the hospital. His health was

then tolerably good, and he had suffered only one attack of ague, with pain in his left side.

Probably change of air was of much service to this man, who had returned from the unhealthy climate of Arracan. I have sometimes seen enlargements of the spleen, which occurred here, subside quickly under the use of the spleen mixture without any change of air. About 20 days appears to be the usual period required for the subsidence of recent vascular engorgement of the spleen in young subjects, under the most steady system of treatment, in those cases where mercury has not been administered ; and where the early and febrile stage of the disease has not been aggravated by undue employment of stimuli. On the other hand, the chronic induration of the spleen is removed with the greatest difficulty ; and many of the older cases are hardly to be cured by persistence in the best remedies.



CHRONIC ENLARGEMENT OF THE SPLEEN.

When enlargement of the spleen has existed for several months, the tumor becomes more indurated ; it is less changeable in its bulk in the course of a few days, and not so quickly affected by remedies, as the recent stage of vascular engorgement of that organ is. The size of the chronic enlargement of the spleen varies, in the adult it frequently is found

to weigh five pounds. In children it often fills the space from the left hypochondrium, quite up to the umbilicus, and sometimes extends to the right of the navel; reaching in length, down half way, or even the whole distance to the pelvis. When a case of this sort has existed half a year; and the patient not being much emaciated, recovers on using medicine, in three or four months, it may be deemed a fortunate result of the most careful treatment. And when a chronic induration of the spleen of this enormous size is completely cured, relapses are very rare; which is not the case in the early stage of vascular engorgement of the spleen; for then the local enlargement is apt to return on any slight indisposition. If the tumid spleen be of a globular shape, an enormous degree of disease may generally be cured by perseverance in the use of the remedies already pointed out: but if the enlarged and indurated spleen be of an oblong shape, with a thin sharp edge, which is deeply indented by notches that can be felt through the abdominal parietes; a cure is much more difficult, and cannot generally be expected, except as the result of a careful and prolonged treatment; which sometimes requires the aid of a sea voyage.

Indistinct agues are apt to attend this chronic form of the disease, and the patients often have œdema of the feet and hands. If diarrhœa or dysentery take place during the existence of

chronic induration of the spleen, in emaciated patients; they very rarely recover.

In the commencement of the treatment of Chronic diseases of the spleen, we derive great benefit from applying leeches daily, or every second day, to the left hypochondrium: and the recovery of chronic cases is very often retarded on account of omitting to apply leeches in sufficient numbers at first. With local depletion, patients must persist in a moderate course of purgatives, combined with some preparation of iron; at the same time, that they are enjoined to use a spare diet, with only a small quantity of meat, or fried fish, and to take some vinegar or pickles, with dinner*.

Blisters or issues over the region of the spleen are of service; but we should be careful of applying them to emaciated, leucophlegmatic, or dropsical subjects, during the rainy season: as sloughing ulcers are then liable to be excited by them. Much benefit is derived from a flannel bandage, or broad belt of flannel applied moderately tight, so as to support the weight of the spleen; and it is important that the whole belly, but especially the left side, should be rubbed for an hour twice a day with heated flannel; if there be an open issue, the side may be rubbed round that. Liniments are not of much use.

* Pickled Capers, eaten daily with the food, were considered of use in preventing spleen disease, in the time of Pliny.—Vide C. Plinii Naturalis Historiæ, lib. 20, cap. 15.

CASE LXXX.—John Brown, aged seven years ; a delicate child, of light complexion, and active habits ; born in Bengal of European parents ; was placed under my care on the 20th of November, 1828 : he was suffering from general ill health, and a swelling in the left side of the belly. The spleen filled the whole left hypochondrium, and extended laterally quite to the navel ; its lower extremity reached half way from the umbilicus to the pubis : it could be plainly seen when the child was laid on his back. The tumor was rounded, hard, firmly fixed in its place, and painful on pressure. The conjunctivæ of the lower lids were pale and bloodless, the extremities wasted, the face was sallow, the abdomen tense and very protuberant anteriorly ; the appetite was indifferent, and the child suffered from irregular returns of fever, the exacerbations of which generally occurred in the afternoon, but he had never experienced any distinct rigor. The pulse was usually 82 and weak ; but during an attack of fever, it was seldom less than 124. The bowels were regular, and the urine was high-colored. I was informed that this child was first taken ill with fever in October, 1826 ; he had then a tedious illness, and imperfect recovery. During his convalescence the enlargement of the spleen was discovered, and he had not recovered good health from that time ; the tumefaction of the spleen never having subsided.

The child was directed to be dressed in flannel. He was ordered to eat no meat, and to take only a

small quantity of soup for dinner. Five leeches were applied over the region of the spleen every third day ; he had two table-spoonsful of the spleen mixture, every morning, early, and half a grain of sulphate of quinine, in solution, every day at 11 o'clock in the forenoon : a dose of castor oil was given early on the morning of the day previous to using the leeches. By these means he was freely purged, and the irregular returns of fever were prevented.

December 5th.—The spleen is not materially altered in size, but it is softer ; the child is rather weaker : it was impossible that his face could be paler than when he first came under my care. The leeches were continued every third day ; but the castor oil and quinine were omitted, and a large table-spoonful of the spleen mixture was given every morning early, and repeated at noon, by which he was usually purged four times a day. The same diet was continued, and a very small quantity of vegetable curry, with rice, and toasted bread, allowed for dinner.

Dec. 20th.—The spleen is much decreased in size, the child has become very fretful, and many of the last leech-bites have inflamed, and are suppurating. The medicine has usually produced three or four free stools daily ; the appetite has improved. One table-spoonful of the spleen mixture is to be now given every morning, and his diet increased by allowing some roasted or broiled chicken every se-

cond day, alternately, with a kid or fish-curry ; and vinegar is offered with his food whenever he will take it. Half a glass of port wine is now given, diluted with twice the quantity of water, daily, with his dinner.

January 12th, 1829.—He has usually two free stools daily. His health is much improved, and the leech-bites have all healed : the size of the spleen is decreasing slowly. The whole of the abdomen and back ordered to be rubbed with a heated flannel for an hour night and morning, daily.

Mixture continued.

February 10th.—The spleen is decreasing in size daily, and his health is much improved. The spleen mixture is to be given every second morning from this date.

March 2nd.—No enlargement of the spleen can now be discovered by the most careful examination. The child has become stout and fat, and has a healthy complexion. His general health has very rapidly improved since the middle of February, when the weather began to be warmer. Medicine omitted.

December 6th, 1831.—The health has been completely restored, and he is now the most active and healthy boy in Calcutta.

CASE LXXXI.—Peter Crawley, aged seven years ; was brought to me on the 19th of Nov., 1830, for advice, on account of an illness with which he had been afflicted for six months, during which time he had suffered from frequent attacks of fever, and he

was gradually wasting away. I found him pale and emaciated, the feet slightly œdematous, the conjunctivæ pale and bloodless, his face sallow and bloated; and there was a livid circle round the eyes. Tongue slightly coated with white mucus, and so pale and bloodless as to resemble a piece of macerated veal; his gums were livid, pulse 116: there was some morbid heat of skin continually present, but he had usually an exacerbation of fever in the evening, not preceded by rigor. The spleen was large, hard, rounded, and heavy, not at all moveable; it filled the whole left hypochondrium, and extended more than a finger's breadth to the right of the umbilicus; its lower extremity, when he stood up, was felt three fingers' breadth lower than the level of the navel; in fact, it reached nearly to the pelvis. Diet restricted to tea, bread, sago, and arrow-root.

Four leeches were applied over the enlarged spleen, every third day, for five times.

He was ordered to take every morning a table-spoonful of the spleen mixture with quinine: some of the following ointment was rubbed over the abdomen daily; and when the leeches were no longer used, it was applied more particularly over the enlargement of the spleen.

R. Camphoræ ʒ i.—Spirit. Rectificati ʒ ss.

Cerat. Cetacei ʒ v.—Olei Terebinth. ʒ ii.—misce.

February 18th, 1831.—The above medicines have been continued daily. He had no fever after the second application of the leeches, and the spleen has

decreased at least one-third. He has now an attack of continued fever, which commenced yesterday, without any evident cause. There is a great degree of morbid heat, with some cough, and shortness of breath. Former treatment omitted.

Eight leeches applied over the spleen.

R. Pulv. Jalap. Comp. 3 ss.

— Scammon. Comp. (Ph. Ed.) gr. xii.—misce.

Mitte tales chart. x.

One powder at 6 A. M., daily; and repeated at noon, if he be not freely purged.

Feb. 19th.—He was well purged by the second powder; the pyrexia is somewhat abated.

Apply six leeches over the region of the spleen.

Powders repeated as yesterday.

Feb. 20th.—Purged freely, and very little pyrexia now remains. Powders repeated daily.

Feb. 22nd.—He is free from fever; the spleen is very slowly decreasing; he is pale and weak. Ordered to take two table-spoonsful of the spleen mixture, with quinine, every morning. Allowed chicken curry, or broiled kid, with pickles and vinegar at dinner.

March 8th.—Health considerably improved, and the spleen is slowly decreasing.

A blister two inches square applied over the spleen, and kept open.—Medicines continued daily.

March 23rd.—The spleen continues to decrease slowly, and his health is somewhat improved; but he suffers from occasional vertigo, and has a headache almost every forenoon, which is ascribed to the

quinine. The spleen mixture ordered without quinine; two table-spoonsful to be taken every morning.

April 13th.—The head-aches ceased on omission of the quinine. There has been no change in any respect during the last 20 days. Half a glass of port wine was ordered to be given daily at dinner-time. Former treatment omitted.

R. Tinct. Ferri Muriatis—

—— Gentian. Comp. āā 3 i. misce.

To take 40 drops in a small wine-glassful of water daily at 6 A. M., and repeat at noon.

R. Scammon. Gummi-resinæ—

Extract. Colocynth. Comp. āā 3 i.

Saponis Duri—Cambogiæ āā 3 ss.—misce, et divide in Pil. No. xxx.—one pill every night at bed-time.

May 4th.—Progressive and satisfactory improvement in the decrease of the spleen; health and general appearance somewhat mended: his appetite is good. Above treatment continued daily.

May 22nd.—There is no evident change in the last ten days: a scabby eruption has appeared all over the head. Former medicine omitted; and he is ordered to take a powder composed of Black Salt, 10 grains, and the powder of the small Myrobalan, 20 grains, every morning early, in a wine-glass of water.

June 6th.—The above medicine has generally produced two or three stools daily; his health and appearance are improving, and the spleen has decreased somewhat in the last fortnight. Eruption on the scalp better. Treatment continued daily.

July 10th.—He continues to improve slowly ; the powders purge him rather more than at first ; the eruption over the scalp is better. Powders omitted ; he is directed to take ʒ i. of iron filings, in a tea-spoonful of common oil of mustard seed every morning ; and a tea-spoonful of the Tincture of Aloes and Garlic, mixed with three tea-spoonsful of water, to be drunk immediately after the former medicine : a dose of castor oil was given every Monday morning, omitting the other medicines for that one day each week.

September 22nd.—The above remedies have had a remarkably good effect ; the child's health is much improved in every respect ; the spleen is rapidly decreasing, but it can still be felt under the cartilages of the left false ribs ; it is round, moveable, and not pained by any pressure.

The same treatment was continued, and the enlargement of spleen disappeared entirely. He had a slight attack of fever on the 12th of November, 1831, for which he took infusion of senna and quinine for four days, and got well. He is now a fine healthy boy, residing in Calcutta, and can be seen at any time.

CASE LXXXII.—A tall and delicate woman, of dark complexion, 22 years of age : was brought to me for advice on the 16th of December, 1828, on account of a tumid spleen that was half as large as her own head. The disease was first observed in the beginning of November, and was very large when

first noticed ; it had not been preceded by fever or any other ailment, except that she had been remarkably weak and languid, during the rainy season, more especially since the beginning of August : for the last 14 days her health has declined more rapidly, and she has restless nights. On examination, the spleen is found rounded, and very protuberant anteriorly ; it extends two fingers' breadth to the right of the navel, and reaches half way from the cartilages of the left ribs to the pelvis, as she lies in the horizontal position : from its enormous bulk, the tumor is not easily moveable. The conjunctivæ of the lower eyelids are pale and bloodless, the tongue is white, clean, and blanched like macerated flesh. Pulse, when in the recumbent posture, 92, soft, and weak ; when she is standing up, 112 ; the extremities are cold, and the appetite is indifferent. The bowels are prone to constipation. This patient is the mother of one child, which is now nearly five months old, and she has been unable to nurse it. The catamenia are regular but scanty, and there is no other favorable symptom ; a more pale, glastly, and leucophlegmatic visage never was seen.

She was directed to live on a small quantity of good soup, with a little broiled mutton for dinner, and to use only tea and bread, with sago, night and morning. Three table-spoonsful of the spleen mixture were ordered to be taken very early in the morning : with the intention that it should purge her twice freely in the forenoon, and not interfere

with the digestion of a sparing dinner of animal food at 3 o'clock.

For the purpose of unloading the turgid spleen, and at the same time not arresting the feeble remains of regular menstruation; four leeches were ordered to be applied over the region of the spleen every second day, for four times each month; commencing their application on the second day after the menstrual period was over: so that for the ten days prior to the menstrual period, no leeches were applied. The medicine was also omitted during menstruation. The whole of the abdomen where leeches did not bite, was rubbed daily with hot flannel; and the patient was directed to wear an entire dress of flannel next the skin, besides her usual clothes.

February 20th, 1829.—The mixture has been occasionally increased or decreased a little, so as to operate as a purgative twice freely in the early part of the day. The spleen has decreased very considerably, but there is not much improvement in the general health. The mixture was now taken with exceeding difficulty and reluctance, often causing nausea; therefore it was omitted. The leeches were ordered to be continued for four times in each month, as above directed; and she was allowed more meat, and two glasses of port wine, daily.

R. Scammon. Gummi-resinæ—

Extract. Colocynth. Comp. āā ʒ i.

Mix. Spleen. Spleen. Spleen. Spleen. Spleen.

Saponis Duri—Cambogiæ āā 3 ss.—misce, et divide in Pil. No. xxx.—Two pills to be taken every night at bed-time.

R. Tincturæ Ferri Muriatis ʒ ii.

Twenty drops to be taken in a wine-glassful of water at 6 A. M., and repeated at noon every day.

June 10th.—The same treatment prescribed in February has been continued without intermission, except during the flow of the menses. The pills produced regularly two copious stools every day, early in the forenoon; and sometimes one or two scanty stools afterwards. The spleen has slowly decreased, and is now not a quarter the size it was in December last: the health decidedly improved. Some of the leech-bites have inflamed, and are suppurating. The leeches were discontinued; the pills, and Tinctura ferri muriatis continued.

October 6th.—The decrease of the spleen has been very slow since June, but the tumor has now entirely disappeared; and the patient's health has become in a great measure re-established, although this is the most distressing month in the year, for weak persons.

March 6th, 1831.—I have this day examined the patient, and cannot discover the slightest vestige of enlargement of the spleen. Her health for the last 18 months has been as good as at any period of her life.

CASE LXXXIII.—On the 9th of December, 1827, I was called to see a patient who had just arrived from the Upper Provinces, and found him

laboring under an enormous chronic enlargement of the spleen ; which nearly filled the left side of the belly ; it was tense, hard, and fixed, heaving up the cartilages of the ribs on the left side ; extending laterally quite to the umbilicus, and horizontally three fingers' breadth below the navel. The whole belly was tumid and tense ; respiration was hurried by slight exertion. The pulse was 88, soft, and oppressed ; appetite tolerable ; bowels regular. There was a slight serous oozing from a small ulcerated aperture, above and a little to the left of the umbilicus ; round which aperture the muscles and integuments were indurated to a considerable extent. The movement of a palankeen, or any attempt to take exercise caused pain in the spleen. Though his face was pale and sallow, and the conjunctivæ of the lower lids bloodless, his constitution did not appear much impaired : his muscles being tolerably firm, and not much reduced in size. This man had led an active and temperate life, as a mounted officer, at one of the most healthy stations in the upper provinces of Bengal. The account of this patient's illness, which was sent with him, stated that an enlargement of the spleen had been first observed in March, 1826 ; and could not be ascribed to any particular cause : at first it was neither very painful nor accompanied with much pyrexia. The swelling gradually increased, and in the months of August and September, 1827, was attended with high fever and extreme pain ; suppuration then took place, and

the ulcerated opening near the navel formed: after which the distressing pain and pyrexia abated, but the tumor of the spleen was not remarkably decreased. The discharge was described as a serous fluid, with flakes of lymph, dreadfully offensive; and it appeared to me to have proceeded from the interstices of the muscles, and not from suppuration in the spleen itself*. Before coming to Calcutta, he had been treated by purgatives, and a small quantity of mercury.

The whole belly was rubbed daily with a liniment composed of cajeputi oil, aromatic spirit of ammonia, oil of turpentine, each one oz. mixed with three ounces of anodyne liniment. A small portion of blistering ointment was occasionally inserted into the orifice of the sinus, with a view to keep up a continued discharge.

R. Pulv. Rhei—Ferri Tartarizati āā gr. xii.

Pulv. Zingiberis gr. v. misce—to be taken every morning early.

R. Acidi Nitrici 3 ss.

Aquæ Fontis—Misturæ Camphoræ āā 3 iv.

Tinct. Gentianæ Comp. 3 ii. misce,—a wine-glassful to be drank every two hours, until the whole is used; beginning four hours after the powder.

R. Aloes Extract. 3 ivss.

Ferri Sulphatis 3 ss.—misce et divide in Pil. No. xx.

* In Andral's Clinique, vol. iv. p. 650. Obs. 30, is an instance of a tumor near the spleen, seated exterior to the peritoneum, the size of two large oranges, containing a sero-purulent fluid. I consider it somewhat similar to the above case.

Two pills every night at bed-time, if he have not had three stools in the course of the day.

December 28th.—The size of the spleen has decreased at least one-third; the general tension of the belly is much diminished, and the cartilages of the left lower ribs are less heaved up than formerly; exercise is less painful, and he can now bear to ride in the buggy, without much uneasiness.

Powders and pills continued. The acid is omitted, and he is directed to take a claret-glassful of weak infusion of sage twice a day.

February 22nd, 1828.—The spleen has continued to subside slowly, and the belly is softer; the tumefaction at the left side is somewhat less than half the bulk it was in the beginning of December; exercise is now borne with hardly any pain, and his appearance is improved, but the appetite is uncertain, and not good; the extremities are usually cold; and there is no pyrexia.

Former medicines omitted.

R. Decoct. Cinchonæ lb. i.

Magnesiae Sulphatis 3 i.

Tinct. Gentian. Comp. 3 ii—misce. A claret-glassful to be taken every morning.

R. Decoct. Aloes Comp. lb. i.

Tincturæ Ferri Muriatis 3 ii—misce.

A wine-glassful to be taken every night at bed-time.

March 17th.—Very slow decrease of the spleen has continued since last report; the tumor is now less than one-third what it was on his arrival in

Calcutta. He was advised to go a voyage to sea : during which he took daily some rhubarb and sal polychrest, with pulv. calumbæ in the mornings ; and when the bowels were not sufficiently free, a pill was taken at bed-time, composed of one grain of camboge, with two of colocynth, and two of scammony.

After little more than a year, I had an opportunity of again examining this patient's side, on his arrival from sea ; and could not discover any remains of the enlarged spleen. His general health was very much improved, but not so good as it was before the enlargement of the spleen commenced.

A more extended experience in the treatment of the diseases of the spleen, since the above case occurred, induces me to consider that notwithstanding the abscess in the side, and the late period of the disease when the patient came under my care ; it would have been better to have bled this patient from the arm once, to have applied six or eight leeches over the spleen every second day, for a fortnight : and to have given for the first six weeks the spleen mixture ; which might then have been followed by the rhubarb and ferrum tartarizatum in the mornings, and nitric acid during the day, with greater benefit.

During the existence of diseases of the spleen, attended with much enlargement of that organ ;

hæmorrhages from the nose, lungs, or stomach are very liable to occur : when these discharges of blood are moderate, they almost always afford relief ; and in many cases recovery takes place so soon after their repeated returns, that there is reason to ascribe the cure to the bleeding. In young females, who are affected with the tumid spleen, just before puberty, the solution of that disease is very frequently preceded by bleeding from the nose. These facts coincide with the benefit generally derived from the repeated abstraction of a moderate quantity of blood, even in advanced stages of the disease ; though there be no pyrexia present, and little or no morbid sensibility on pressing over the enlarged spleen. In adult females, with whom any degree of menstruation remains, we should be careful to apply leeches or take blood at such times as shall not interfere with the periodical return, abstracting blood after the regular period is over, as was done in Case LXXXII.

Spontaneous hæmorrhages, if very profuse, sometimes suddenly destroy life ; though they frequently appear to be the sole cause of restoration to health, in patients with whom all remedies have for a long time failed to afford any relief.

CASE LXXXIV.—In July, 1828, I was requested to see a child, aged three years and half ; who had been in a weak and languid state for nearly a month, in consequence of a slight attack of fever. The spleen was enlarged, extending below the cartilages

of the ribs, but it was not very protuberant anteriorly: the paleness, debility, want of red blood in the capillary system generally, and other constitutional symptoms were strongly marked. This child had not been exposed in any unhealthy situation; on the contrary, he had lived in an upper-roomed house, with all the comfort and care, which opulence could command; and no cause could be assigned for the origin of the spleen disease, except the fever, and the influence of the Bengal climate.

Previous to my first visit, and before the enlargement of the spleen was discovered, a small quantity of calomel had been used with other purgatives; and from observing the injury generally produced by mercury in such cases, I do not hesitate to ascribe the protracted illness of this child, in great measure, to the calomel that was used when the enlargement of the spleen was in an incipient state.

The patient was now treated for two months with the usual spleen-remedies, without success; as he appeared to be very weak, leeches were not applied. He had frequent paroxysms of fever, his health continued to decline; and when sent on board ship in October, he was reduced to a very low state of emaciation and debility: the enlargement of the spleen had not been diminished by the remedies employed. I afterwards ascertained that during the voyage to England, there was some improvement of health, and slight decrease of the spleen: but on arrival in Europe the child got worse, and sunk

into a state of extreme debility. I was informed that he was for some time treated without avail, by professional men of the highest reputation: he continued to decline in strength and appearance; the belly became very tumid, and the spleen larger than ever; his lips were covered with a dry, brown scab, and the respiration was much oppressed. His disease was considered by his friends beyond the reach of medicine, and in despair of recovery, all treatment was abandoned, except rubbing the belly with hot flannel, which was continued, because it seemed comfortable. The slow decline was progressive, until a spontaneous bleeding at the nose took place, and returned for several days, to such degree, that life was considered in great danger from the loss of blood. The first favorable change observed was a greater freedom of respiration; and notwithstanding the extreme debility, there was increased playfulness, and in a few days, improved appetite. From this time he gradually improved, and in four months, was restored to good health; without any medicine except an occasional aperient of rhubarb, or castor oil, when costive.

CASE LXXXV.—Thomas Brooks, *Æt.* 46; a tall, and rather thin man, of dark complexion; 14 years resident in India; is on his way to Europe, being lately invalided on account of chronic disease of the spleen and general ill health. He is now sent to hospital on the 11th January, 1831, ailing from the remote effects of drunkenness. He states that

he suffered from fever and ague at Rangoon in 1826, and the spleen then became enlarged; ever since which period, he has been subject to induration and fulness under the left false ribs, which has been attended with a sense of weight, and so much uneasiness as to prevent his standing quite erect since he left Rangoon: he is of a costive habit.

R. Pulv. Folior. Sennæ ʒ i. at 7 A. M.

January 13th.—He was purged four times by the senna; and is now slightly feverish; the spleen is hard and round, extending two fingers' breadth below the cartilages of the left false ribs. Ordered to take a dose of castor oil.

Jan. 14th.—He has been purged freely by the oil; and does not complain of any particular ailment, except enlargement of the spleen, and inability to stand erect. Senna powder repeated.

He was purged by the senna in the forenoon; and at 3 P. M., was seized with a vomiting of black blood, in coagula; the whole quantity is estimated at above $3\frac{1}{2}$ pints; he became pale and faint; the pulse 64, soft, and weak; and the tension at the left hypochondrium at once subsided.

R. Magnesiæ Sulphatis ʒ iii. Aquæ Fontis ʒ ii.

Acid. Sulph. Dilut. gtt. xii.—misc. To be taken at 3 P. M., and repeated at 6.

Jan. 15th.—He has been restless and uneasy all night, and has had many stools, consisting of broken coagula, mixed with fluid blood; the evacuations altogether are equal to five pints; he is pale and weak.

R. Olei Ricini $\frac{3}{i}$. at 7 A. M.

Jan. 16th.—He has had nine stools in the last 24 hours, in all about $3\frac{1}{2}$ pints, the same sort of evacuations as yesterday, but more fluid.

R. Magnesiae Sulphatis $\frac{3}{ii}$.—Aquæ Fontis $\frac{3}{ii}$.

Acid. Sulph. Dilut. gtt. xii.—misce. To be taken at

7 A. M.

Jan. 17th.—He has had only two stools in 24 hours, the first contained blood. He seems less debilitated.

R. Pulv. Jalap. Comp. $\frac{3}{ss}$. at 7 A. M.

Jan. 18th.—He was purged four times yesterday by the jalap, and there was no blood in the stools; he feels well, but weak. Jalap repeated.

Jan. 19th.—The tumefaction of the spleen has entirely subsided, and he is able to stand erect, better than at any time since 1826. He was directed to take Pil. Rhei Comp. gr. xii. daily.

Discharged to embark for Europe, on the 21st January, 1831.

CASE LXXXVI.—Denis Cahill, Æt. 40, a tall thin man, of light complexion, emaciated habit, and broken constitution; 17 years in India. Admitted into hospital on the 8th of March, 1827, with enlarged spleen, attended by pain, and sense of weight at the left hypochondrium, and in the left shoulder blade, extending from thence round the loins. The belly is so elastic, tense, and full, that the dimensions of the enlarged spleen are not very distinctly defined. He is emaciated and pale, with bloodless

lips, and dry skin; usually of a costive habit, but has suffered much from diarrhœa for a week before he came to hospital; the evacuations are copious, quite fluid, of grey color, and extremely offensive.

The most distressing symptom was the diarrhœa, which defied all remedies; he became weaker, the tension of the belly increased, and in the beginning of June ascites appeared. By the use of a weak solution of acetate of potass with acet. colchici, and sp. æther. nitrici, the hydropic tension of the belly was beginning to decrease; without material amendment of other symptoms. On the 22nd of June, at 10 o'clock A. M., he was suddenly seized with hæmatemesis; not less than two pints of dark-colored blood was vomited, which was not coagulated. He immediately felt the left side easier than usual. Eight leeches were applied to the left hypochondrium. At 7 P. M., he began to void blood per anum, and during the night he was ten times at stool. The evacuations amounted to near four pints of pure blood, no part of which was coagulated. On the 23rd of June, the belly was less tense, and no tumor of the spleen could be felt; he vomited some clots of blood at midnight, and had many stools of thick and tar-like blood: the tumefaction of the belly subsided, but these copious evacuations produced much debility. Slight incoherency of speech was observed, and he was affected with anxiety and hickup; some blood was voided daily by stool till the 26th.

On the 3rd of July, he was beginning to recover his strength, and the stools were reduced to three daily; the spleen could now be felt, but it was exceedingly small compared with its former size.

He never recovered from the exhaustion of these repeated hæmorrhages, but gradually sank, and died on the 23rd of July, 1827.

On dissection—the spleen was found about double its usual size, and slightly indurated; the splenic vein was filled with an organised coagulum; part of which was traced extending along the vena portæ, into those branches which enter the liver: the vena portæ itself was about half filled with this organised coagulum, and the other half was occupied by the ordinary recent coagulum, which is found in the veins. A preparation of the part has been preserved. The liver was slightly indurated, and of rather darker color than natural; the mesenteric glands were enlarged, and there were a few small grey tubercles in the lungs.

From the evidence contained in the foregoing pages, we see how great an influence the diseases of the spleen exercise on the human system: and what strong indications they afford for the observance of peculiar caution in the treatment of some of the fevers of Bengal; and in all those diseases which may be complicated with tumid spleen, or its corresponding cachexia. On comparing the above account of spleen diseases, with other maladies; we will be

able to observe that the disorders most closely allied to *Splenic Cachexiæ*, are, Chlorosis, Scorbutus, and some species of Anæmia. The parallel of these diseases is so strongly marked, that I am surprised it should not have been generally noticed : the morbid condition of the blood is somewhat similar, the progress of the local inflammations and ulcers which occur during these diseases, are alike difficult to manage ; and similar remedies are found useful in these complaints.

NATIVE REMEDIES FOR SPLEEN DISEASES.

IN the former chapter, I had occasion to remark how seldom we saw Diseases of the Liver occurring in Natives of Bengal. It is quite the reverse with respect to Diseases of the Spleen, which are exceedingly frequent, tedious, and dangerous complaints, among the Natives of this part of India ; arising often as idiopathic diseases, but in the majority of cases ascribed to fever, dysentery, or other debilitating disorders.

The mode of treatment requisite for the cure of spleen disease of Asiatics, does not differ from that directed for Europeans ; except that the same frequency and extent of depletion by blood-letting and leeches is not requisite : and in those cases where pyrexia does not exist, there is no need of such active purgatives as are advised for Europeans.

In some Natives of delicate constitution, who live on a very poor diet; the tumid spleen sometimes appears suddenly, unattended with any very urgent symptoms, except paleness and debility: these subjects will often recover, if they are allowed a small quantity of good food, and are made to take a dessert spoonful of undiluted tincture of rhubarb early in the morning, and two ounces of infusion of chiretta, with 20 drops of nitric acid, in the afternoon.

The following prescriptions are used by the Natives of Bengal; and I have often tried them in cases of spleen disease of Asiatics, with benefit; though in the majority of cases their efficacy is very inferior to the spleen mixture. They may occasionally deserve a trial, in Europeans, when we wish to vary the patient's medicine: and Natives will frequently take these prescriptions with more confidence than European medicines.

A.

Sulphate of Iron, 4 grains.

Garlic, 20 grains.—Aloes, 6 grains.

These ingredients are made into a bolus, which is repeated early every morning. Half this dose is given to a debilitated man, or to a woman; and a quarter, to a child under 12 years of age. This is commonly used in the lower provinces of Bengal, and is often very effectual. A small dose of castor oil, or Teori, (*Convolvulus Turpethum*), is usually given every 5th day.

B.

Garlic, 32 cloves, (about 3 vii.)

Aloes, one ounce.—Brandy two pints.

To be mixed and macerated in the sun for 15 days. The dose is 3 ii. to 3 iv. twice a day, for an adult, mixed with an equal quantity of water. This is said to be best adapted for spleen cases, attended with emaciation and diarrhœa. It generally acts as a diuretic and mild aperient.

C.

The same quantities of garlic and aloes, as above directed, are mixed in two pints of vinegar, and used after 15 days, in the same manner as prescription B. It is considered an efficacious medicine for those patients who appear stout and rather bloated, but are not suffering from diarrhœa, or an irritable state of the bowels. It is less generally used than prescription B.

D.

Iron-filings 3 ii.

Common Oil of Mustard seed, 3 i.

These articles are mixed and swallowed early in the morning; immediately after which a dessert-spoonful of the tincture of aloes and garlic (B) is taken undiluted: and the patient lies down on the left side for half an hour after taking the medicine. Before commencing the medicines, the patient is purged with castor oil.

The use of this last prescription has in several cases of recent spleen disease, unattended with pyrexia, been followed by subsidence of the tumid

spleen in very few days. The common oil of mustard seed of the bazars, contains a portion of vegetable mucilage, in which a considerable degree of the pungent properties of the mustard are taken up ; and with the aloetic tincture, the patient gets a tolerably strong stimulant dose in a small bulk.

E.

The Natives in some districts occasionally employ sulphate of copper, in such small doses as barely to have an emetic effect. I have given this remedy in doses of two and four grains, in pills, with an equal quantity of Pill. Rhei Comp. Its efficacy seems to depend on its tonic and astringent properties.

F.

Decoction of chiretta, made by boiling one ounce of the stalks, in a pint of water, till it be reduced to 12 ounces, to which 30 drops of nitric acid are added, and the whole is drank in the course of the day. I have frequently prescribed this remedy, with benefit, for Europeans who were suffering from tumid spleen in a chronic state. The decoction made as above directed, is intensely bitter.

In some emaciated patients, who were taking the aloetic tincture, (prescription B,) the subsidence of the enlargement of the spleen was not followed by a restoration of health ; the patients sank into a state of marasmus, and died. On dissection, the morbid appearance connected with the spleen, in these cases, was a firm and broad adhesion of the great curvature of the stomach to the contiguous part of the spleen,

appearing like a broad flat band ; the extension of which passed across the middle of the spleen, and was attached to the peritoneum, just inside, and above the cartilages of the ninth and tenth ribs, on the left side ; so that the spleen was found to be slung up in its place : in such cases the whole peritoneal coat of the spleen was found thickened and opaque. I have, however, seen a number of obdurate cases of spleen disease of long standing, permanently cured by persistence in use of prescription B ; and in some of those whom I had an opportunity of observing carefully, there seemed a slight increase of morbid sensibility on pressure over the spleen, while the patients were under the influence of the medicine, and they complained of thirst, but had no other symptoms of fever. Hence it would seem probable, that in patients whose constitutions are not much impaired, the permanent cure of the spleen may be favored by a slight degree of superficial but acute inflammation, affecting the peritoneal coat of that organ : the permanent contraction which follows the absorption of the coagulable lymph, effused during the inflammatory state, may tend to effect a permanent cure of the tumid spleen, in a manner somewhat analogous to the permanent contraction produced in the gall-bladder, as a remote consequence of slight superficial inflammation, which is alluded to at page 229. This opinion is supported by the fact, that appearances of superficial inflammation very rarely exist in those cases of great tume-

faction of the spleen, which have not been cured : while, on dissection of subjects who had for many months or years suffered from enlarged spleen, and who had recovered from that complaint, and enjoyed good health for years afterwards ; some vestiges of previous inflammation have been noticed. I have observed these adhesions, (giving the appearance as if the spleen were slung up in its place,) so frequently, after stimulant treatment had been employed in chronic spleen disease, that I do not hesitate to refer these appearances to the effects of the remedies.

Long needles are said to be used by native practitioners, to puncture the spleen : and if these instruments ever penetrated to the diseased organ, and a cure succeeded, it is very probable that the successful event might be ascribable to the peritoneal inflammation excited at the diseased part. I have seen the natives use needles, which were so short, that I am quite certain the surface of the spleen was never touched in any of their operations which I witnessed. However, as they operate with the acknowledged intention of puncturing the spleen, it is probable that the use of needles for that purpose, is founded on the practical acquaintance of the benefits arising from such operation when more effectually done. And it is possible that the advantage which is derived from it, may depend on a degree of local inflammatory action, of the peritoneal coat of the spleen, being followed by an effusion of lymph, which on absorption causes a contraction of that tunic, and thus effects

a permanent decrease of the spleen. I have in chronic cases, inserted 2, 3, or 4 long needles, deeply into the substance of the spleen: the needles were introduced exactly two inches, and no unfavorable symptom has ever followed the operation: the effects were deemed useful in accelerating the absorption of the enlarged spleen; but the patients were at the time taking the usual remedies. Two men, named Pereira and Guthrie, have each had the spleen repeatedly and deeply punctured: they recovered, and I think the spleen in each diminished more rapidly after the operation, than for 3 or 4 weeks previously. Since the first edition of this work was published, I have repeatedly punctured indolent and indurated spleens with long needles, and in some instances certainly with beneficial effects.

CASE LXXXVII.—In one case, wherein the needles had been used, I had an opportunity of examining the body after death: the patient named Ramsawmy, an Indo-Portuguese, 40 years of age, came to hospital on the 4th of July 1832, in a state of extreme emaciation: he had been ill five months with enlargement of the spleen, which had been followed by symptoms of pulmonary consumption, in such an advanced stage, that his cure could not be expected. Five long acupuncture needles were inserted into the spleen on the 30th of September; two on the 22nd of October; four on the 27th of that month, and four more on the 5th of November. This patient died on the 18th of January, 1833, from the gradual progress of pulmonary disease.

On dissection, extensive suppuration in the lungs was observed, the mesenteric glands were large and hard. The spleen was enlarged and indurated, and an extensive opaque patch was found at that part of its peritoneal coat, where the needles had entered. There were no adhesions of the spleen to adjacent parts.

We have yet to ascertain, at what stage of the diseased spleen, the decrease of the local enlargement is likely to be accelerated by the use of needles. In some periods of the early stages of the vascular engorgement; we have reason to believe that adhesive inflammation, or a healthy process is not very likely to follow local injuries, by operation or otherwise. The natives of this country generally use remedies in disease, from practical knowledge of their efficacy, without much reasoning; therefore I would not reject any of their therapeutical expedients as despicable, without an inquiry into their *modus operandi*; and an experimental investigation of their utility. I have repeatedly seen native practitioners apply the actual cautery* over the region of an enlarged spleen: the issue made in this manner may be considered a very effectual remedy, as we see a great number of people of all ages, in the lower provinces of Bengal, who have marks of the cautery.

* The cautery was used by the Arabian physicians, for the cure of obstinate spleen disease. See Albucasis, vol. i. sect. 30, Oxford edition, 1778, where the forms of the cauteries, and the modes of using them, are described.

on the left hypochondrium, and in whom no vestige of enlargement of the spleen can be discovered by the most careful examination ; and most of those who are so marked, appear to be in good health. Were it not for the pain of the operation, as well as the cruel appearance of burning, I could recommend the moxa for the purpose of forming an issue.

ENERGY IN ACUTE DISEASE

EFFECTS OF MERCURY IN DISEASES OF THE SPLEEN.

PATIENTS who are suffering from enlarged spleen, are generally liable to be affected in the most unfavourable manner by mercury : and this is more particularly the case with pale and leucophlegmatic subjects, who are labouring under the early stage of vascular engorgement of that organ. In fact, the extreme debility, depression, and exhaustion, produced by mercury in most cases ; and the premature salivation, destructive ulceration, and horrible sloughing of the gums, lips, and cheeks ; which frequently take place in consequence of the administration of small quantities of mercury, are so shocking to contemplate ; that the treatment of the endemic spleen disease of the lower provinces of Bengal, should never be spoken of, without a preliminary caution respecting mercury. The state of constitution, rendering the use of mercury improper in this disease, seems to depend on some condition of the solids, or fluids, or of the vital actions, superadded to that state, which is

generally denominated debility; for mercury does not produce such evil effects, when given to patients who are debilitated in consequence of hæmorrhages, or of acute diseases at dry and healthy stations. Whatever may be the essential condition of constitution, on which the destructive effects of mercury depends; the frequency, nay almost certainty of those effects, in greater or less degree, whenever mercury is used during the existence of vascular engorgement of the spleen, cannot be too strongly stated.

Ulceration and sloughing of the mouth, though prone to occur during spleen diseases, from slight local irritations of any sort; happen much more frequently, and in more severe degree, after the use of mercury.

The disease of the mouth, in cases of tumid spleen, commences in various ways; that description of ulceration of the mouth which is most sudden in its origin, and most rapid and destructive in its progress, begins with slight tumefaction at the orifice of the parotid duct; which becomes obstructed by the swelling, at the same time, that ulceration takes place at its termination, and permits the saliva to be injected into the cellular structure of the cheek. A glossy semi-transparent swelling will then form, nearly half the size of a small orange, in the course of one night. The cheeks and forehead become hot, and inflammation takes place, attended with low fever: the internal ulceration increases, and if the patient survive four or

five days, the cheek mortifies and falls out : so that the teeth are laid bare, and this horrible sloughing ulcer allows us to see into the throat.

In other cases, that are usually more protracted, superficial ulceration of the mucous membrane of the mouth extends slowly, until it passes over the red part of the lip ; and soon after reaching the external skin, an inflamed patch forms, which in a day or two becomes black, and the mortified portion is thrown off, uncovering the front teeth : the event of such cases is generally the destruction of life. In still slower cases, the gums ulcerate slightly, while an extensive separation of the periosteum of the jaw-bones takes place, and is followed by caries of the bones of the face : many of the teeth fall out, and extensive exfoliations of the jaw bones happen in these patients. Even after this destructive process, some persons recover ; and live for many years, examples of the evil effects of the injudicious use of mercury.

In some of these unfortunate cases, the tongue adheres to the inside of the lower jaw-bones, and cannot be protruded beyond the points of the few tottering teeth that remain. In others, the jaws are permanently closed to such degree, that solid food cannot be used, and speech is much impeded. It is not among the indigent classes of society alone, that these misfortunes happen, where they might be ascribed to the patients' poverty and negligence of themselves ; but they are liable to occur, and do occur, among the most opulent, and to those who are pro-

vided with every domestic comfort, if mercury be carelessly exhibited during the unfavorable state of constitution that attends splenic cachexia. These people also often become permanent valetudinarians for life, from rheumatism and general debility, in consequence of the effects of small quantities of mercury, whereby the mouth and teeth suffer in the first instance: but many die from the debility produced by mercury, before ulceration of the mouth takes place. Such evil consequences, from the employment of mercury, are infinitely more rare where the spleen is not diseased.

The best treatment for these lamentable cases, is to obviate as far as possible every sort of local irritation, and to arrest ulceration, by the use of mild astringent washes for the mouth and gums; the most useful of which is composed of—

Spirit. Camphoræ—Tinct. Catechu āā ʒ i.

Tinctura Rhatani ʒ ii.—misc. A dessert-spoonful to be mixed with a tumbler of tepid water, to wash the mouth every three hours.

One of the greatest and most permanent causes of local irritation, is the pressure of the teeth against the swollen and irritable membrane lining the inside of the cheeks. To remove this, I usually direct the patient to keep a piece of folded soft rag, wet in a weak solution of sulphate of zinc, always placed between the double-teeth and the inside of the cheek.

The medical treatment should be such as is suitable in sloughing ulcers of debilitated subjects. The spleen mixture should be given once every day, early in the

morning; and quinine in solution, at noon, with the addition of the compound tinctures of bark, cardamums, and gentian, each 3 ss. for an adult; and at bed-time a dose of quinine in solution, with as much acetate of morphia or black drop, as shall procure rest. The diet should consist of a small quantity of good soup, and a glass of port-wine at noon; and if the patient be able to eat meat, a small quantity of roasted meat, or of mild curry, in the afternoon, with repetition of the port-wine: tea, sago, and bread, night and morning. When the sloughing inside the cheek is commencing, it may in a few cases be checked, by one application of undiluted nitric acid to the part.

It is very difficult to treat cases where enlargement of the spleen from vascular engorgement, co-exists with enlargement of the liver, and biliary congestion; I have been frequently induced in such diseases to try the cautious administration of mercury, but in the majority of cases, sudden and extreme exhaustion of strength, with ghastly and sunk countenance, were found to be produced by small quantities of calomel or blue pill. Not only have the effects of mercury in such cases been evinced by dangerous debility, as an early consequence; but the influence at remote periods has been equally to be regretted. The disease of the spleen in these patients has been exceedingly obstinate, and in some instances intractable; as the following examples will show.

CASE LXXXVIII.—John Hewett, *Ætat.* 27. Had ague one month at Arracan, and on his return from that place was received into Calcutta General Hospital, on the 16th of December, 1825; having then an enlarged spleen. The whole belly was very tense and full, his skin was dry, the tongue was white and moist; the countenance was of an unhealthy, lurid, cadaverous aspect, and there was bilious discoloration of the surface. He was exceedingly weak, though not much reduced in size. The spleen mixture was administered daily; but not producing sufficient purgative effect, pills of *Extract. Colocynth. Comp. grs. iii.*—*Camphor.*—*Pulv. Ipecac. āā gr. i.* were added; after which, he had four stools daily.

Nevertheless, the enlargement of spleen, and general tension of the belly, continued. The bilious tinge of the skin was unabated, the urine was high-colored, and he had pain in the region of the liver: there was also a severe cough, attended with viscid mucous sputa. These indications of biliary accumulation and disorder induced me to prescribe *Calomel.*—*Pil. Hydrarg.*—*Pulv. Antimon.*—*Extract. Hyoscyami. āā grs. v. mane et vesper.*

In three days the mouth became affected; the cough decreased, and in a few days ceased entirely: the bilious tinge of the countenance, and other symptoms referrible to disorder of the liver, were diminished, but the spleen remained large. At the same time when the mouth became affected, extreme emaciation suddenly took place; attended with increased debi-

lity and exhaustion. The mercury was omitted, and nutritious diet with wine was requisite to prevent his dying from debility. He was very weak for a long time, and some yellowness of the face remained. He was able to proceed up the river in a boat to Ghazeepore, on the 19th of January, 1826; considerably better, but still much reduced.

This man suffered from ague, with pain in the side, and enlarged spleen, in October and November, 1826. By the kindness of Dr. Daunt, I had an account of his state of health so late as the 30th of April, 1827, up to which time he had suffered frequently from dyspnœa, and an irregular state of the bowels; but was not considered unfit for military service.

CASE LXXXIX.—W. Hoy, Ætat. 28; a very pale and weak young man: had intermittent fever for 35 days, at Arracan, where he was salivated. On his return from thence, he was admitted into the General Hospital on the 16th of December, 1825; suffering from an enlarged spleen, general tension and fulness of the belly, cough, and intermittent fever of tertian type.

R. Scammon. Gummi-resinæ

Extract. Colocynth. Comp. āā 3 i.

Saponis Duri—Cambogiæ, āā 3 ss. misce et divide in
Pil. No. xxx.

Liquor Arsenicalis was given daily; and he took two or three of these pills every night, so as to be freely purged.

No benefit was derived from this treatment; therefore he commenced on the 18th of December, to take one ounce of the spleen mixture three times a day, and persisted in its use until the 23rd. He was then not any better, but suffered from frequent attacks of vomiting; his urine was at times very high-coloured; and the skin and eyes were bilious.

R. Calomel.—Pulv. Antimon.—Pil. Hydrarg.

Extract. Hyoscyami āā gr. ii. misce fiant Pil. ii. To be repeated night and morning daily.

Only four doses of these pills were taken, when a most remarkable degree of debility was quickly produced, with very sunk anxious countenance: the mouth was slightly sore. The teeth had been loose ever since the former salivation at Arracan.

A very liberal use of wine was requisite for many days, to save this man from sinking. Various remedies were afterwards tried without effect; the spleen remained large.

On the 10th of March, there was a bilious appearance of the face, and the urine was high-colored to such a degree, that I was induced to try the blue pill; but after he had taken two doses of five grains each, there was great increase of debility, with such a lank and sunk countenance, that the pills were omitted. This patient's skin was certainly clearer, and he felt better after the debility had in a degree subsided. He became stronger, and had a more healthy appearance. But although he remained above four months in Hospital, the enlargement of the spleen could not be reduced.

CASE XC.—A slight made man, aged about 47, who had enjoyed tolerably good health in India for many years : suffered from dysentery and remittent fever, for several weeks, in the autumn of 1824, at a station which was remarkably unhealthy during that season. He used a small quantity of calomel, (he said the whole that was taken in the course of several days, did not exceed 24 grains,) which moderately affected his mouth ; and he came to Calcutta for change of air. I saw him the day after his arrival. He was emaciated, had an enlarged spleen, and general tension of the belly ; the right cheek was enormously swollen, hard, and shining ; he ascribed the swelling of the cheek to cold during his journey to Calcutta. There was a dreadful mercurial odor from his mouth. Mortification took place in the tumor of the cheek, and in spite of every remedy that could be suggested, he died in six days.

CASE XCI.—John Wilson, Æt. 40 ; a slight made man, resident in Calcutta ; was attacked with Fever, not preceded by rigor, on the 20th of October ; and was admitted into the General Hospital on the 24th of October, 1825. He was bled to lb. i., and took eight grains of calomel, followed by one drachm of the compound powder of Jalap ; and a warm bath was used. The bowels were afterwards kept open by extract. colocynth. comp. for four days. At that period, he had a dry skin, and brown but moist tongue. He was ordered to take Extract. Colocynth. Comp.—Pil. Hydrarg.—Pulv. Antimon. āā gr. ii. This was repeat-

ed three times on the 29th of October, once on the 30th, and once on the 31st. Several days afterwards, a slight mercurial fœtor of the breath was observed; but it gave no uneasiness, and attracted no particular attention. The soreness of the mouth went on increasing till the 20th of November, and then a slight superficial ulceration had extended round the right side of the upper lip; for which alum-wash was used, and his bowels were kept open. The face up to this time had not been much swollen, nor the salivation considerable. On the 24th, he was very low and weak, with a feeble pulse; and mortification of the lip had commenced. He stated, that he had been seized with pain in the spleen during the night: this was the first time that he had complained of pain in the left side.

He was ordered to take decoction of bark, compound tincture of bark, and acids; under which the constitution seemed to rally; but the mortification extended, and the whole right side of the upper lip was destroyed, quite up to the nose. He died on the 23rd of December.

On dissection, the spleen was found enlarged and soft, like a coagulum of blood in a cyst. The liver was dark-colored, and harder than natural. The gall-bladder was contracted, and not larger than the end of the little finger: it contained some green gelatinous fluid.

CASE XCII.—A poor man, who had been exposed in an unhealthy and low situation; suffered

from remittent fever and enlarged spleen in July and August, 1824. He said some calomel was taken, with other purgatives. I could not ascertain the exact quantity of mercury that was used. A dreadful salivation followed, with sloughing of the gums and destruction of the teeth, and part of the alveoli of the jaw-bones. He gave me 14 teeth, and several portions of the jaw bones : some of the latter are above two inches long. This poor fellow still lives, a melancholy example of the baneful effects of mercury, in cases where men are laboring under the constitutional affections that generally attend vascular engorgement of the spleen. These teeth and portions of the jaw-bone are still in my possession.

CASE XCIII.—Charles Crawford, a tall and rather muscular man, 28 years of age ; suffered severely from remittent fever at Arrakan in 1825, and had an enlarged spleen. Mercury was administered in large doses, and produced sloughing of the gums, which was followed by exfoliations of the alveolar processes of the jaw-bones, and he lost the whole of the teeth, except eight in the upper jaw. He afterwards came under my care for the cure of acute dysentery, which was successfully treated by V. S., mild aperients, and ipecacuanha with gentian. This poor man had a senile aspect, in consequence of the extensive exfoliations of the lower jaw-bone, of which only a narrow rim remained.

CASE XCIV.—An European invalid at Chunar*,

* This case is communicated by Mr. T. E. Baker, Surgeon of the 10th Regt. of Bengal Light Cavalry, formerly Garrison Surgeon of Chunar.

was admitted into hospital with the usual symptoms of fever, for which purgatives were administered, and two grains of calomel with antimonial powder, were given three times a day. On the fourth day the tongue was observed to have become suddenly much swollen, and ulcerated; and the inside of the cheeks was found in a sloughing state. These appearances gave rise to the first suspicion of an affection of the spleen, and on examination, the tumefaction at the left hypochondrium was ascertained, though the patient himself was previously not aware of its existence, and he had not complained of pain or uneasiness of the part affected. Mercury was omitted, and gentle purgatives with mild, light, nourishing diet were given; and as the patient complained of great pain in the tongue and mouth, the following mixture was frequently applied with a feather—opium and camphor, of each ten grains, honey, half an ounce, mixed. This application appeared to afford some relief, and he gradually recovered. Mr. Baker concludes his account of the case with this remark :—“ Mr. Hamilton, the Superintending Surgeon, who was then at Buxar, informed me, he had seen similar, and much worse effects from the use of mercury, where there was an affection of the spleen, and that it was necessary to be extremely cautious in using that medicine under these circumstances.”

It might appear unreasonable to ascribe the rapid increase of debility in some of these cases, and the extensive destruction of bone as well as of soft parts,

to the small quantities of mercury used ; but a multitude of facts might be adduced, shewing similar consequences from the use of small quantities of mercury ; in fact, such evil effects might be stated almost invariably to follow, when much mercury is used during the early stage of tumid spleen, in the lower provinces of Bengal.

It is important to inquire, how soon after the subsidence of tumid spleen, calomel may be employed without hazard ; in case a patient who has recently recovered from spleen disease, should suffer from any complaints urgently requiring the use of that remedy. I have some reason to believe, that mercury may be employed without danger, after the subsidence of tumid spleen, when patients have recovered from the debility which usually attends that disease : provided the functions of the skin are restored, and there is a return of red blood in the capillary circulation on the surface ; and a healthy degree of vascularity of the lining membrane of the palpebræ.

The chronic enlargement of the spleen, if left without medical treatment, often remains for many months, or even for years ; and in a few of such protracted cases, the constitutional symptoms begin to abate while the tumefaction of the spleen remains. In these cases, if mercury should be requisite in the treatment of any particular disorder that may supervene, we occasionally see that medicine given, without those destructive consequences before described ; but no beneficial effects on the diseased spleen ever arise

from the use of mercury, even in the description of cases, and at the stage of disease above alluded to. I ought to repeat, that all cases of spleen disease, where mercury has been employed during any stage of the complaint, are found to be very obstinate and intractable; and the instances are exceedingly rare, in which the effects of mercury are not evidently injurious.

CASE XCV.—*Craigie, Ætat. 26*; returned from Arracan in December 1825; suffering from ague and enlarged spleen: the tumor in the left hypochondrium was but little benefited by medical treatment, and he was sent for change of air up the river out of Bengal, to Ghazeepore; where he did not recover. He returned to Fort William, an invalid, in December, 1826; having an enlarged spleen, and general tumefaction of the belly. He was attacked with cholera; and then, besides other treatment, he took five, scruple-doses of calomel, in 24 hours; and recovered from the cholera. The gums were affected by the mercury, but the spleen remained unchanged; and he did not suffer more from the calomel than a person of sound constitution would have done, from a like quantity of that medicine.

CASE XCVI.—*Edgeworth*, returned from Arracan in December, 1825; laboring under ague and enlarged spleen: he had been salivated. This man went to Ghazeepore for change of air; but the spleen disease resisting every remedy, he returned to Calcutta in November, 1826; the spleen being still large and hard, but not tender to the touch. Various

remedies were administered without benefit, and afterwards he tried Extract. Colocynth. Comp.—Pil. Hydrarg.—Extract. Hyoscyami, āā gr. iii. daily, for 14 days. The mouth was slightly affected, and no remarkable debility induced ; but the spleen was not decreased in size.

In deciding on the nature of some of the diseases of India, we may avail ourselves of the accurate investigations of our professional brethren in other countries ; and by comparing the character of a given malady here, with that of its congener in a different climate ; are greatly assisted in forming a correct judgment. We cannot in this way derive so much aid respecting affections of the spleen, as in some other diseases ; for although many authors have taken slight notice of the maladies to which that organ is liable, we are up to this day without any extended pathological inquiries, on which we can rely for practical information relative to these diseases : it is quite certain that the modes of treatment ordered in modern systems of medicine, are neither safe nor successful. The unconnected remarks of some authors, and many of the individual cases related by others, seem heretofore to have been looked on as curious phenomena, not reducible to any rule ; and hardly of sufficient importance to deserve consideration, or to afford any indications for guiding our practice. However, it does appear to me, that many of the facts on record, are of the highest importance ; and as some

of the works in which they may be found, are obtained with difficulty in England, and are seldom seen in this country; I shall deem no apology necessary, while a few of such works are here noticed, as tend to throw light on the subject.

Varieties have been observed in the symptoms and termination of spleen diseases, in remote countries, which may be ascribed in some measure to the nature of the local enlargement and intensity of the constitutional affection, the principal modifications of which may be here stated.

The tumid spleen of the English soldiers, contracted during a service of but few months in Walcheren, was observed in a considerable number of instances to go on to suppuration. In Dr. J. B. Davis's work on the Fever of Walcheren, and its consequences, published in London in 1810, forty-two cases are detailed; in which the disease terminated fatally: of these, abscess of the spleen was found in cases 13, 20, 21, 26, 30, 35, 39, 42, and the spleen is stated to have been ulcerated in cases 14, 16, 24, 28, 36, 37, 40. Supposing Dr. Davis to have had the care of the worst cases of spleen disease that returned from Walcheren, and that his dissection reports were taken from examples of the most aggravated forms of the disease; this frequency of termination in abscess or ulceration, surpasses any thing of the sort on record that has come within my reach. Among the Walcheren cases, sudden death from œdema of the epiglottis was not rare; and in-

stances of ulceration of the interior of the gall-bladder were noticed in some of the patients.

At this remote period, it would be difficult to ascertain how far the frequent tendency to suppuration of the spleen, and the very great mortality of the Walcheren fever, may have been increased by the treatment employed. Dr. Davis states at pp. 104 and 105, that his patients "were put upon a course of mercury, which was continued for weeks."

Mr. G. P. Dawson, who published at Ipswich, in 1810, a short account of the diseases of those who returned from Walcheren, bears testimony to the appearances of ulceration and abscess of the spleen, observed in dissection. Œdema of the larynx, and abscess of the parotids, were among the untractable symptoms seen in his patients. It is well known, that at the worst periods of the diseases now alluded to, stimulants of wine and animal food were liberally used; and that a majority of the cases were treated with mercury in no very sparing manner: these facts have been put on record by those who were employed in the hospitals on that occasion. See *Dr. Thomas Wright on Walcheren Remittent Fever*, p. 106 and 144.

By the accounts of Juncker, Kramer, and others; spleen disease seems to be a frequent attendant on the remittent fevers, in low and swampy parts of Hungary: but in the majority of cases, the visceral enlargement there, appears to have been a slow disease, very often attended with dyspepsia; cough and other indications of pulmonary affection were occasionally present.

I have seen some patients from Demerara, who had for a long time suffered from cachexia and a slight degree of tumefaction of the spleen ; in whom distressing dyspnœa, with bloated swollen face, and the essential characters of anæmia were most strongly marked.

Affections of the spleen appear to be very much influenced by climate, season, and particular localities. Spleen disease is rare at Meerut, which though situated in a flat country, is on a dry and sandy soil, that has a tolerably good drainage into the Kalee Nuddee. But within a few miles there are swamps* where the inhabitants suffer much from that malady. It is also well known that the parties employed in making the Almorah road, suffered excessively from fevers and enlarged spleen, at the same time that the inhabitants of dry and elevated places at an inconsiderable distance, were in a great measure exempt from such diseases. The vascular engorgement of the spleen is occasionally seen, connected with fevers, at the termination of the rains, at almost all the marshy or low and damp stations in British India. The disease of the spleen is much more frequent in those years on which the most obstinate, fatal, and protracted remittents prevail

* Sir G. Blane, speaking of marshes, and districts consisting of alluvial matter, like the deltas of great rivers, says, "There is a poison in the exhalations from such soils, the nature of which is entirely unknown." Perhaps the most intense degree of this poison exists in the marshes at the foot of hills in India.

on the marshy banks of rivers, or the ill-drained alluvial soil at the foot of hills ; and those patients who have been subject to the autumnal endemic fever in one season, and have remained at the same station, are very liable to suffer from disease of the spleen on the ensuing autumn. The flat and marshy districts at the foot of hills are liable to intermittent fevers, not only from malaria, but from the diurnal alternations of temperature, when the atmosphere is hot in the day, and a chilling draught of cold air issues from the gorges of the valleys between the neighbouring hills, at night. Terrestrial radiation of caloric takes place to a remarkable degree in such places, and has a great influence on the diurnal changes of temperature. The history of the fevers of St. Domingo, and of Minorca, by Jackson, and Cleghorn, show how frequently disease of the spleen is connected with the autumnal fevers of those countries. But great heat is not essential to the production of that disease : it is the autumnal endemic of Holland, of the low parts of Hungary, of the marshes of Lombardy, and is by no means rare in the fens and marshes in England. In fact, enlargement of the spleen is frequent wherever intermittent and remittent fevers prevail. A correct account of the varieties of spleen disease which occur in different countries, and of the best mode of treatment, is a desideratum.

Wherever diseases of the spleen have existed, and a careful record of their nature, progress, and termination can be obtained ; with an account of the treat-

ment that has been employed : the injury done by the exhibition of mercury in the majority of cases, has been acknowledged by those practitioners whose attention has been particularly directed to the subject ; but in general, the established belief of English practitioners, that calomel is the best remedy in almost all visceral diseases, which have been denominated obstructions, has caused the evil effects of mercury in spleen diseases to be heretofore overlooked ; the injury done by mercury being usually imputed to the inevitable course of the disease, and not to the treatment. One man may say he orders mercury *as an alterative* ; another may administer it *as a purgative* : but the destructive effects of mercurials in cases of splenic cachexia, are not modified by the intention of the prescribing physician. As far as we can judge from the observations of authors who have paid particular attention to the class of diseases now under consideration, there appears to have been a remarkable uniformity in the evil consequences which have followed the use of mercury in these diseases : in this assertion, I am supported by the accordance of facts, observed in different parts of the world, too numerous to allow any room for doubt on the subject.

In a dissertation, *De Splenitide Chronica*, published at Berlin, in 1825, by Dr. Joan. Augustus Leue ; the author says, “ *Salivatio mercurio orta, omnia morbi symptomata valde auget ;*” and in detailing the case of a woman, 24 years of age, who

suffered from obstinate disease of the spleen for many months, we find the following statement:—
 “ Calomel quod hucusque nondum adhibueram, veritus, ne salivatio paucas doses sequeretur, nunc die 21 Decembr. præscribere ausus sum (Calomel. gr. i. Magist. Bism. gr. i. c. sem. Tinct. Op. simpl. gtt. i.: ter vel quatuor quotidie assumendum).”

“ Primum hoc remedio cardialgia valde imminuta est, sed jam tertio die salivationis prodromi apparuere, sex granis mercurii assumptis. Hoc igitur remedio statim omissa tamen ægritudo nunc duplicem vigorem obtinuit, ventriculi tormina et omnia splenitidis symptomata in gradum insolitum accrevit, cum virium prostratione maxima, febre, capitis gravedine et fere omnium corporis partium doloribus. Os multa aqua, in qua salvia decocta sit, fovere jussi et flores sulphuris præscripsi. Die 29 Decembr. ægrotam sudore perfusam inveni, quem morbi levamen secutum est. Abhinc salivatio, quæ omnino modica fuerat, sensim decrevit, atque simul cetera morbi signa.”

In the fourth volume of the Dublin Hospital Reports, there is an excellent Essay by Dr. Cumming, on the Cancrum Oris, which appears frequently in unhealthy seasons among the children of poor people in some districts in Ireland. The symptoms described by Dr. Cumming, correspond with the characters of the splenic cachexia of Bengal; and among the few dissection reports given by the author, we find disease of the spleen is noticed.

A relation between the constitutional disorder, the tumid spleen, and the ulcerated mouth; or the remote influence of those morbid phenomena on each other, does not seem to have been suspected. His patients appear to have been the ordinary pauper applicants who are seen in Dispensary practice. It would have been interesting, if possible, to have ascertained whether these children had been previously ill of fever, and if calomel had been freely administered to them during the course of that disease. Dr. Cumming alludes to the opinions of some physicians on the spot, who ascribed the ulcerated mouth to the influence of calomel.

In Mr. G. P. Dawson's observations on Walcheren Diseases, page 32, the author "denies that mercury was useful in the Walcheren fever; on the contrary he affirms that its exhibition was often attended with injury. There were visceral diseases in many cases, particularly of the spleen, yet mercury produced no good, but harm. Four, five, or six mercurial frictions, or a few small doses of mercury generally produced the most dreadful salivation, which made death by suffocation, not a very improbable event." Mr. Dawson says, "the practice with mercury was little used in his hospital, in which there were more instances of recovery, and fewer deaths than in any other. The spleen was found diseased in almost every case, weighing from three to five pounds. The face was yellow, the cheeks were hollow, the eyes sunk, and all was despondency and distress."—p. 48.

The evil effects of mercury during the existence of spleen diseases, is also mentioned by the following writers in the Medical Journals :

Dr. Abercrombie says, " Attempts to reduce enlargements of the spleen by mercury, are generally followed by the worst consequences." See *Edinburgh Medical and Surgical Journal*, vol. 22 ; also refer to,

Dr. Vetch, in the *London Medical and Physical Journal*, vol. 51.

Mr. Henderson, in the *Edinburgh Medical and Surgical Journal*, No. 84.

Dr. Crane, in the *Edinburgh Medical and Surgical Journal*, No 75, page 243.

I may be excused for earnestly pointing out the evils caused by mercury in diseases of the spleen, particularly in that state which I have denominated vascular engorgement ; and in fevers complicated with tumid spleen : because the practical instructions laid down in the best systems of medicine of the present day, do not inculcate the avoidance of mercury in any cases of enlarged spleen. On the contrary, the use of mercury is recommended for the cure of spleen diseases, in works which are at present in high estimation, among which I may specify the following :

In Dr. Good's *Study of Medicine*, we are told, that the treatment of diseases of the spleen should be the same as that ordered for diseases of the liver. The functions and diseases of the spleen are treated under various heads in that excellent work ; but no allusion is made to the injurious effects of mercury, in any

modification of tumid spleen.—See 2nd edition, page 484, vol. i. and pages 442 and 434, vol. ii.

The same sort of treatment for diseases of the spleen, as is applicable to the various stages of diseased liver, is recommended in Dr. Philip Wilson's work on febrile diseases.

Dr. Thomas, in his Practice of Physic, p. 192, orders "in the acute state of spleen disease, frequent purging with calomel and jalap, besides other antiphlogistic treatment." And in "*enlargement, induration, or scirrhus*," he says, "we must employ mercury, both as a purgative and deobstruent, in the manner advised for inflammation of the liver." Dr. Bree admits a more limited employment of mercury in diseases of the spleen: he says, "mercury has appeared to be injurious, excepting it may be directed for the purpose of purging the intestines and opening their exhalants." See Medico-Chirurgical Transactions, vol. ii. p. 100.

Much the same sort of treatment is recommended by Cullen; as well as in the Edinburgh Practice of Physic, and several other medical works. Pember-ton on the Abdominal Viscera, advises mercurial frictions, and small doses of calomel, with extractum conii, till the mouth be slightly affected. The mercurial treatment followed by Dr. J. P. Davis, is already stated at pp. 467 and 468, of this volume.

I will only add one reference to a recent work, which is likely to lead inexperienced persons in this country, into errors of practice, the most destructive

to human life. I allude to Mr. Annesley's work on the Diseases of Tropical Climates, in which the free use of mercury is ordered as a general practice in diseases of the spleen. In vol. ii. page 5. "in cases of simple tumefaction, without inflammatory action, a full dose of calomel at bed-time, and a purgative in the morning, are advised to be continued daily, or on every other day, according to the circumstances of the case;" and at page 6, he says, "in congested or tumefied spleen; after having given two or three full doses of calomel, or of calomel and opium, at bed-time; we should adopt with much benefit the blue pill and the aloes and myrrh pill, giving them every night, and the full doses of calomel every third or fourth night only." I am obliged to express my disapprobation of the above instructions, in the strongest terms: and trust I may do so, without deviating from the respect which is due to Mr. Annesley's high situation in the service, and to the industry he has evinced in professional pursuits.

The precise nature of the connexion between enlargement of the spleen, and those intermittent and remittent fevers with which the local affection of that organ is combined; and the reciprocal influence of those diseases, as well as the effects produced on the constitution by their co-existence; are subjects worthy of the most deliberate and ample investigation, which is likely to lay the foundation for conclusions of the utmost importance to medical science.

The facts already ascertained, and recorded by various authors, relative to these questions, are sufficient to prove the frequent concurrence of tumid spleen with a large proportion of the autumnal fevers at low and damp stations in almost every part of the world, but more especially among the endemic fevers which occur at marshy districts within the tropics. The local disease, in general becomes apparent at an advanced stage of *intermittent fevers*, and usually at so late a period as to be considered in ordinary cases the consequence of the fever; which however, is seldom or never permanently cured until after the enlargement of the spleen has been removed. The vascular engorgement* of the spleen frequently appears at an early stage of those *remittent fevers*, which occasionally prevail in their most dangerous forms among men who have been much exposed to fatigue, and privations, at low, damp and marshy situations.

It is proper here to observe, that although the spleen often becomes suddenly enlarged, all the constitutional symptoms usually attendant on splenic

* The term *vascular engorgement*, has been employed, rather than inflammation, because the former more precisely indicates the actual state of the tumid spleen, in the greater number of cases during the early stage of the disease. But the symptoms which have been enumerated, and the cases contained in this chapter, show by what imperceptible degrees some forms of this disease approach to inflammation, while others, after long continuance, fall into a state of chronic induration.

cachexia, do not appear immediately; and when tumefaction of the spleen thus arises quickly in plethoric subjects, at the commencement of fever, there is in some cases, no deficiency of red blood in the vessels of the membrana conjunctiva; however, the paleness and other characteristics of diseased spleen mentioned at page 393, become very conspicuous in a short time, in almost all cases.

The endemic fevers which occur in low and marshy districts, and are complicated with tumid spleen, resemble those diseases that often prevail in the Campagna di Roma, and which have been named by Baillie and other physicians, *fevres intermittentes pernicieuses*; in which, enlargement and softening of the spleen occur very frequently. These fevers are characterised by symptoms that indicate extreme congestion of blood in one or more vital organs, and are marked by the early accession of debility, with small weak pulse, anxiety, and the predominance of some very unfavorable symptom, such as, prolonged cold perspirations, which sometimes last for several days; faintness, attended with livid and cold extremities, while the head is hot; oppressed respiration; and occasionally with such apparent predominance of black blood, and depression of the vital power, that Bordieu has compared this kind of adynamic fever to acute scorbutus; and he has very often found such fevers accompanied by softening of the spleen, similar to the state of that organ which is usually observed in those who die of scurvy.

The inefficacy of mercury in the treatment of enlargement of the spleen, and the injurious consequences which frequently follow the administration of that medicine during the existence of splenic cachexia, are now amply proved by the evidence of the most experienced practitioners.

When enlargement of the spleen is observed in patients suffering from fever, and who may at the time be using mercury, that remedy must be immediately omitted; for the majority of those patients who have already taken a considerable quantity of calomel in the previous stages of the fever, are almost certain of tedious and imperfect convalescence; and in some of them where much mercury has been used, the disease of the spleen, and impaired state of constitution, are found to be absolutely incurable. In these cases we have in general nothing to regret in giving up mercury, for that medicine is useless in cases of fever connected with vascular engorgement of the spleen; and the other resources against fever must be relied on. The only cases of fever accompanied by vascular engorgement of the spleen, in which I have found it necessary to resort to the use of calomel, and in which I have observed benefit was derived from the employment of that remedy, were patients who were suffering from cerebral affection of an inflammatory description, attended with hot forehead, which was not removed by repeated V. S. and leeches, aided by purgatives and antimonials. But I must say, that such cases have been rare,

and in some of them, the ordinary unfavorable consequences of calomel were so manifest, that the utmost caution must be advised whenever the employment of mercury may be deemed indispensable in patients who are suffering from tumid spleen. In splenitis, or acute inflammation of the peritoneal coat of the spleen, it is possible that mercury may be occasionally given with advantage, on the same principles as in pleuritis, see p. 392 of this vol. But I would advise caution in the administration of mercury, even in well marked cases of splenitis.

Several years ago, I undertook an inquiry relative to the remote effects of calomel, on patients who used that remedy for fevers, at the same time that they were affected with spleen disease. I allude particularly to patients who had taken calomel at the commencement of fevers, before it was discovered that the spleen was affected. A most patient and prolonged investigation was pursued relative to numerous such cases ; in many of which I ascertained the state of health above eighteen months after mercury was used, and compared the reports of their condition, with the state of patients who had suffered from fever and spleen disease, attended with an extreme degree of impaired health, but who had used no mercury. I found that those patients in whom mercury had been administered during the existence of spleen disease, almost always had the health permanently impaired ; in fact, a large number of them might be said to have broken and ruined constitutions : while those

who were treated for similar diseases without the use of mercury, almost invariably recovered good health in Bengal.

It is probable that fevers similar to those which occurred among the military at Walcheren, at Arrakan, and after Corunna*, will always be remarkable for a large proportion of fatal cases, under any mode of treatment. The majority of such fevers, at a late stage, and many of them even at a very early period, are attended with enlargement of the spleen, and with the cachexia which usually accompanies the tumid state of that organ, wherein mercury is proved to be injurious. It would seem important in all such diseases, in future, to trust to V. S., with the general employment of the antiphlogistic treatment, and the use of mild purgatives at an early stage; ordering quinine, with bitters and tonics at a later period, or as soon as the inflammatory symptoms are subdued; without giving any mercury in cases where enlargement of the spleen exists, or the constitutional symptoms of splenic cachexiæ are strongly marked.

* See Mr. Richard Hooper's Account of the Fever among the soldiers who landed at Plymouth, from Corunna.

CLINICAL ILLUSTRATIONS
OF THE MORE IMPORTANT
DISEASES OF BENGAL,

WITH
THE RESULT OF AN INQUIRY
INTO
THEIR PATHOLOGY AND TREATMENT.



BY
WILLIAM TWINING,

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Surgeon, General Hospital, Calcutta.*

“Nihilque uspiam proposuisse nisi quod probe exploratum habeam.”

SYDENHAM.

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ON THE

DISEASES OF BENGAL.

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VOL. II.

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CHAP. VI.—CHOLERA.

„ VII.—FEVERS.

CONTINUED FEVERS.

INTERMITTENT FEVERS.

REMITTENT FEVERS.

CONGESTIVE FEVERS.

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DISEASES OF BENGAL.



CHAP. V.

CHOLERA.



FREQUENT vomiting and purging are the symptoms of Cholera, which most commonly first attract the attention, and excite the alarm of patients. The importance and danger of these symptoms must be estimated according to the nature and duration of various concurrent phenomena. With the first efforts of vomiting and purging, the ordinary contents of the stomach and intestines, in most instances, seem to be entirely expelled : after which, as the disease goes on, an aqueous fluid like rice-water is voided by stool : that which is vomited is nearly of the same sort, but has generally its appearance modified by the remedies administered. The whey-like appearance of the stools is so commonly attendant in the worst cases, that it is often spoken of as the *true cholera stool*, or the *congee stool*. The evacuations are sometimes nearly as clear as pure water, and frequently some films of mucus are floating in this sort of fluid. The incipient degree of favourable change in the

disease, is marked by a transition from the states of the evacuations above mentioned, to a drab-colour, then to a grey, and subsequently to a darker colour, as the improvement goes on.

Besides the above symptoms, we find in cholera, sudden and extreme prostration of strength; the countenance is either pale or livid; the eyes are much sunk in their sockets, as if from the sudden absorption of the surrounding fat, and shrinking of the cellular structure of the orbit. There is generally a degree of livid venous congestion of the scleroticæ and conjunctivæ, though sometimes a florid arterial suffusion of the eyes is observed. The sunk eyes, shrunk features, and ghastly expression of countenance, are so remarkable and peculiar, as to be immediately recognized by those who have once seen a cholera patient. The medical man whose illness is mentioned in a subsequent part of this chapter, had no suspicion of his disease being cholera, till about noon of the day on which he died, when he desired his servant to bring him a small looking-glass, and the instant it was brought, he said, "I see I have got cholera, which I did not even suspect before: there can be but little hope of my recovery." He had suffered no spasms, and from there having been a slight bilious tinge in the stools, he had not been aware of the nature of his complaint at its early stage, and thus lost his life. This gentleman had only seen a few well-marked cases of cholera in the Hospital, about a month before.

In bad cases, the voice becomes feeble, shrill, and pectoral; respiration short, difficult, and imperfect; the tongue in a short time is cold and moist; coldness of the whole body, but more especially of the extremities, and a shrivelled state of the fingers, takes place. This mortal coldness is sometimes coeval with the earliest symptoms of cholera, but I have never known it attended with shivering or rigors, like the cold stage of ague, in which the patient earnestly demands more bed-clothes: on the contrary, the cholera patient when coldest throws off the blankets, tosses about in anxiety, and calls for cold drink. The cessation of the calorific function is as remarkable during the hot weather as at the coldest season of the year; in fact, the hot bath, hot vapour or other means of producing artificial warmth, often have not the slightest effect; although inanimate bodies exposed to the same means of raising the temperature, are quickly heated. When the spirit vapour has been employed, the wood and cane of the bedstead may be felt quite hot, while the patient lies as cold as before the vapour was used. When the tendency to collapse commences, the surface of the body (particularly about the chest and upper extremities) is wet with a profuse cold sweat, the pulse becomes weak, rapid, and indistinct; there is often great oppression at the scrobiculus cordis, and occasionally a sense of burning heat at that part, with anxiety and restlessness.

The belly is sometimes tense, tumid, and painful on pressure; but this is rare, the usual condition of the abdomen being flat, doughy, and inelastic. In a few rare instances of irritable and nervous subjects, there is vast extrication of intestinal flatus, with a sort of roaring hickup. In advanced stages of bad cases of the disease, ordinary hickup is sometimes a transient symptom. Intense and distressing thirst soon takes place, in almost all the severer attacks of cholera; and a sensation of noise in the ears, or some degree of deafness, occurs in a considerable number.

Spasms of the extremities, though present in the majority of cases to a certain degree, during some period of the disease, are sometimes entirely absent in patients in whom death takes place very suddenly; and even in some protracted cases, in which nearly all the other more aggravated symptoms above enumerated precede the fatal event. The spasms generally begin in the toes and fingers, then, after affecting the calves of the legs very violently, they often proceed to the thighs and belly.

Some patients have very little of either vomiting or purging; the earliest apparent symptoms seeming to announce the general failure of vital energy, and the incipient death of the patient. Such is the variety in the course of this disease in different seasons, that I could not mention any symptom of cholera which is not occasionally absent, in cases which terminate in death with the most awful rapidity. I have met with a few cases, in which the patients

came to hospital with the same coldness of the extremities, shrivelled fingers, and obstructed circulation, as above described ; at the same time that they were passing by stool a thin bloody fluid, not unlike thin chocolate. These patients had usually been ill three or four days, and they in general died within twelve hours after admission into hospital. On dissection, the most intense degree of lurid, dusky-red colour of the mucous membrane was observed, especially at the cœcum ; inflammation of the small intestines, and morbid vascularity of the omentum and mesentery. This condition was only observed in neglected cases of several days' duration, of which no distinct history could be obtained.

With almost every year I have observed the above symptoms to vary in severity, as well as in the order of succession ; and to be combined in different ways. In some seasons, the ordinary characters of the disease are in the majority of cases attended by a febrile affection more or less distinct ; spasms are then generally violent and painful, causing the patient to cry aloud : the efforts to vomit are urgent, but the quantity of fluid voided both upwards and downwards is frequently not very great. The pulse, though rapid, does not sink very soon, and the warmth of extremities does not suddenly cease. In such cases the vascular congestion of the eyes is commonly of a florid arterial character ; the tongue is furred, often brownish, and usually warm ; sometimes it is dry and very slightly furred. During other seasons,

the greater number of severe cases become cold at an early period, the evacuations being mostly very copious and watery, the pulse sinks rapidly, and becomes indistinct; the voice is feeble, shrill, and pectoral, or entirely inaudible; congestion of the eyes of lurid venous character, and a livid colour of the face and neck take place, as if from stagnation of venous blood: spasms, when present, are then attended with less pain; and torpor, insensibility, and death, soon close the scene. The affection of the head, in remote stages of the disease, sometimes resembles coma; and in a few rare cases transient delirium exists, but generally we find the intellectual faculties remarkably clear and undisturbed during the whole course of cholera. In other years many cases are of a mixed character, beginning with febrile tendency, and a few of them are found vomiting much green bilious watery fluid at first; but rapidly sinking into the state of collapse, with cessation of pulse, cold tongue, and shrivelled extremities. This appears to me a common form of the disease in the last two or three years, since cholera has become much less frequent in this country.

The commencement of the disease with febrile symptoms; and their continuance, while the constitution shews signs of sensibility, action, and power; the warmth and circulation remaining, and the evacuations though frequent never having been very profuse, indicate a tractable state of disease, in which the best results may be hoped from a cautious, steady,

and discriminating treatment. When in the incipient stage of cholera we observe the early accession of torpor, which defies the effect of medicine; with cold and shrivelled extremities, cessation of pulse, cold tongue, and copious watery evacuations; we have to treat a modification of disease in which there is but little to hope in the majority of cases, after these symptoms have existed for four hours.

We must always bear in mind, that those who are affected with the febrile form of the disease, do frequently in a short period sink into a state of coldness and torpor: and on the other hand, also, that in the last stage of collapse there are sometimes symptoms of a short and ineffectual re-action of the system, with morbid heat about the head and chest, for a few hours before death; but there is rarely a return of steady and regular pulse. Vomiting, purging, and spasms, frequently all cease for some hours before death.

Whenever an epidemic visitation of cholera occurs, affecting suddenly a number of persons in one place, a large proportion of the earlier cases are usually of a very severe description, with tendency to early accession of coldness, torpor, and collapse: a considerable number of these appear inevitably fatal. During the first three or four days of an epidemic visitation, the rapidity of the progress of cholera towards a fatal termination seems to increase. I am not aware that the severer form of the disease has ever continued permanent in a station so long as six days; and by the

eighth or tenth day we commonly find only slight cases occurring. Inattention to this fact is liable to lead to an erroneous estimation of the efficacy of any plan, or of the various modes of treatment employed. On one occasion, when cholera occurred in a severe form in detachments recently arrived from Europe, nineteen men died of the twenty-one first attacked with the disease; and of the next thirty-one cases which occurred on the following days, in the same detachment, six only died: a still milder form of cholera succeeded, and the whole of the patients then recovered. This was in May 1827; and the plan of treatment, which was inert in the early cases of the disease, was attended by the most happy results at a more remote period of this endemic cholera, in the same detachment.

The invasion of cholera most frequently appears in a violent form, between the hours of two and five A. M. Regarding the mode in which this disease begins, I may observe that a careful reference to my experience authorises me to say, that its attack often commences suddenly, and without any premonitory symptoms: sometimes it abruptly supervenes on the advanced stage of acute dysentery. The cholera is occasionally preceded by a slight pyrexia; and it has also appeared to me that congestive fevers do sometimes, though rarely, fall into a state of collapse resembling the low stage of this disease; not indeed very often attended with violent vomiting and cramps, but the patient suddenly becomes weak and

cold ; sometimes voiding one *true Cholera stool* : at other times, even this symptom is absent. After the sudden death of fever-patients in this manner, I have several times found, on dissection, thickened state of the coats of the small intestines, and that portion of the canal loaded with pale, watery fluid, like rice-water, with much of the subalbid mucus, and thick white paste, which are usually considered characteristic of cholera. In short, the sudden collapse which occasionally supervenes at the termination of a paroxysm of remittent fever, somewhat resembles the collapse in cholera. I have known several instances in which patients suffering from the remittent fever of the rainy season, and who were taking small doses of an emeto-cathartic mixture, composed of one ounce of Epsom salts and two grains of tartar emetic, in a pint of water ; were seized suddenly with profuse purging of congee stools, cold perspiration, collapse, and death. It appeared to me that in some of these cases, the unfavourable change was brought on by the medicine.

Prior to the more distinct and alarming attack, there are sometimes for a few hours, and in some cases for two or three days, symptoms of indisposition, evident not only to the patient himself, but to his friends. When cholera is raging severely, the disease is often ushered in by diarrhœa ; at other times it begins with catarrh, nausea, and oppression at the scrobiculus cordis ; which are not in an early stage to be distinguished from the slight indisposition

which often precedes fever. The approach of cholera in this manner makes the patient suppose he is “feverish or bilious ;” and if recourse be had to some of the medicines commonly used in slight ailments of that sort, the disease is said to be caused by the dose of medicine taken ; when, in fact, it had been insidiously making considerable progress for some hours. When cholera is prevailing in the vicinity, slight catarrhal, or febrile affections, and disorder of the stomach and bowels, whether tending to diarrhœa or to constipation, seem convertible into cholera by the use of saline or drastic cathartics, more especially if they operate about two or three o’clock in the morning.

A summary of the origin and progress of a few cases of cholera will be here inserted, to show how insidiously that disease often commences, occasionally unattended by any premonitory symptoms ; and the rapidity with which the fatal termination supervenes : there being in some cases neither very profuse evacuations, nor any great suffering from pain.

CASE XCVII.—A gentleman, of dark complexion, and generally very healthy, of regular and moderate habits, twenty-eight years of age, and five years in Bengal, awoke on the morning of the 18th of March, 1830, with slight feeling of uneasiness, which he ascribed to indigestion, and therefore on returning from his usual morning ride, he took a small dose of Epsom salts ; soon after which, nausea commenced, and a cup of tea was vomited two hours after taking

the salts. The extremities soon became cold and shrivelled, his voice was weak and pectoral, the tongue cold, countenance livid, the eyes were sunk, and corneæ dull. The pulse gradually grew feeble and indistinct ; there were occasional slight efforts to vomit, at intervals of half an hour ; and he had only four stools from the commencement to the termination of the attack : the two first of these stools were very copious, and like grey water ; the other two, scanty, and of pale-drab colour. There was dreadful anxiety, some thirst, and occasionally slight cramp, by which the fingers and toes were drawn up, but not very great pain. He died at four P. M., nine hours after taking the salts. The few cases of cholera occurring about this time, had for the most part a tendency to sudden collapse.

CASE XCVIII.—A stout and healthy woman, twenty-two years of age, and eight years in India ; was recovering in a satisfactory manner after her accouchement, nursing her infant, and beginning to go about the house. On the 14th of September, 1825, which was the twenty-second day after the birth of the child, she felt slightly feverish, and took six grains of calomel at bed-time, not being considered seriously sick, either by herself or the family. She rose at two A. M., on the 15th, to let her boy suck, but made then no complaint ; soon after three o'clock, a profuse purging of dark fluid took place : some of the evacuations passed in bed, and those that were last voided were a pale-grey water. There was neither vomiting nor

spasms; the hands and feet became cold, and she died at a quarter past five, in less than two hours and a half after the first purging. This woman was living in comfort, in an upper-roomed house, had not been down stairs since her confinement; and the friends asserted that she had not been imprudent in diet, or in any other respect. Cholera of a severe description was at this time frequent among the natives, in the immediate vicinity of this person's house.

CASE XCIX.—Michael Hammon, H. M. 13th Light Infantry: a stout young man, eighteen years of age, recently arrived from Europe; felt some slight ailment on the 20th of May, and came to hospital on the night of the 21st, complaining of pain at the upper part of his belly, constipation, and slight fever. He had an enema, and castor oil in the night, and senna and salts on the 22nd, by which he was freely purged, and appeared to be getting better; on the 23rd, twenty grains of jalap, and as much cream of tartar, were given, which acted very freely during the day; and about two A. M., on the 24th, a watery purging took place, with coldness of the extremities, feeble pulse, dreadful thirst, and cramps: his life was saved with difficulty, and he was discharged on the 13th of June.

There were several very bad cases of cholera in the hospital at this time; and within a few days, other men of the same detachment were admitted into hospital with spasmodic cholera, and some of them died.

I have known more than one case, where persons feeling some slight indisposition, have taken a dose of rhubarb and magnesia, with a small quantity of ginger, early in the morning; after which, distinct cholera symptoms appeared with the first purgative effects of the medicine, by ten o'clock; and the disease proved fatal within twelve hours. It is evident, that in most such cases, an insidious attack of cholera was going on before the medicine was taken. However, I am of opinion, that when cholera is prevailing, drastic purgatives, particularly senna and salts, or jalap, have frequently brought on the disease in persons who had at the time only slight pyrexia; and who, if left without active purgatives, would not then have had cholera. The experience of many years has so far confirmed this opinion, that we usually are cautious in ordering either jalap or salts in the hospital, when we have many patients with cholera under treatment here, or when that disease is prevailing in the town; and at such times, it is deemed hazardous to give a patient any medicine likely to act on the bowels, between two and five in the morning; therefore, we have usually, if possible, avoided giving, even to febrile cases, on those occasions, calomel and colocynth at bed-time. I do not remember ever having heard the commencement of an attack of cholera imputed to a dose of castor oil.

CASE C.—Michl. Regan, a recruit, recently landed from Europe, who had been eleven days in hospi-

tal with catarrh ; was quite well, and ordered to be discharged in the afternoon of the 10th of December, 1825, to join his regiment. He ate his dinner as usual, and in a few minutes afterwards, he vomited : the worst symptoms of cholera soon came on, and he died of that disease. There was no want of prompt and assiduous attention in this case ; for I was in the hospital at the time that he began to vomit, and saw him in less than fifteen minutes afterwards.

CASE CI.—A stout and healthy lady, of light complexion, aged twenty-six, who had been fifteen months in India, was attacked with vomiting and purging at three o'clock P. M., on the 2nd September, 1825 : spasms of the extremities soon came on, and by five o'clock, collapse had taken place to such a degree, that her life was despaired of : she died before dark the same evening. This person had been quite well up to the moment of the attack : she ate her tiffin as usual, and was afterwards occupied in arranging books in the library, standing on a chair to place those on the upper shelves. When so occupied, she felt sick, in consequence as she supposed, of reaching too high : in a few minutes after the first sensation of sickness, she began to vomit, and all the worst symptoms of the disease quickly followed.

I have met with many instances, when in the upper provinces, where Sipaahees, who marched from the camp early in the morning quite well, have suddenly fallen to the ground, with violent spasms of the extremities ; and in whom vomiting, purging, coldness, and all the worst symptoms of cholera came on quickly.

Some other phenomena, not yet described, are so intimately connected with the character of cholera, and indicative of the morbid changes which take place in that disease, that they deserve particular attention. When the patient, from the first attack, sinks rapidly into a low state, with feeble pulse, cold extremities, shrivelled fingers (as if from long maceration in water), and weak pectoral voice, the carbonic acid evolved by respiration is much less than that contained in the air from the lungs of persons in health. I have several times found the quantity of carbonic acid as low as 1·5 per cent. of the air expired from the lungs of patients in the state described above; and seldom so much as two per cent. In these cases, I have reason to believe, that the pulmonary vapour, or exhalation, is much diminished. In other cases, air from the lungs of patients suffering from febrile cholera, (with violent and painful spasms, free pulse, and warmth of surface,) contained from 3·5 to four per cent. of carbonic acid and sometimes more. I have been particularly careful in the mode of procuring the air from the lungs for these experiments, and have made numerous trials on the expired air of healthy persons*, in order

* In almost every deviation from a state of health, there is a decrease in the quantity of carbonic acid produced by respiration, reducing it below the standard of health. Whereas there are but few circumstances excepting active exercise, by which the quantity of carbonic acid evolved by respiration, is increased, even to a slight degree beyond the healthy proportion. *Prout* observed, that the proportion of carbonic acid evolved by the

to enable me to speak confidently on this subject. I make the patient take rather a forced inspiration ; and then holding the nose till some of the air is expired by the mouth, have the apparatus ready to collect the next portion for experiment ; hoping by these

the lungs, is diminished by the depressing passions, and by such violent exercise as produces much fatigue : fasting has the same effect, and so has the use of alcohol. *Dr. Fyfe* found that the use of a vegetable diet caused a decrease in the quantity of carbonic acid given off, and it was reduced to about one-third the normal proportion, by a course of mercury. *Dr. Edwards* has more recently proved by experiments that an increase of temperature, and diminution of density, tend to diminish the consumption of oxygen ; and the lungs possess a greater capacity for decomposing the air in winter than in summer. The proportion which the oxygen consumed, bears to the carbonic acid that is evolved, varies in almost every species of animal. According to the experiments of *Jurine*, whatever quickens the circulation, increases the quantity of carbonic acid in the expired air ; but this, though for the most part true, is not invariably the case.

It appears that a man at rest (the stomach being empty) consumes 1210 French cubic inches of oxygen in an hour, when the temperature of the atmosphere is 82° of Fahrenheit—and 1344 cubic inches when the temperature is at 57° of Fahrenheit. During digestion the quantity consumed was found to amount to above 1800 cubic inches. By violent exercise (the stomach being empty) it was increased to 3200 cubic inches, and after taking food, still farther raised, to 4600. Hence it will be evident, that a great variety of circumstances must be taken into consideration if we would attempt to draw any accurate therapeutic conclusions from the state of a function liable to be changed by such a variety of causes, even in health. On this subject, refer to the experiments of *Crawford* ; also to the *Mem. of the Acad. of Sciences*, for the year 1789, p. 575.

means to procure a portion of air that has been fairly subjected to whatever vital and chemical action may be going on in the lungs. By always using these precautions, and operating on one given quantity of air, I hoped to insure a relative uniformity of results and the greatest possible precision. It is often very difficult to procure even ten cubic inches of air in a satisfactory manner, from the lungs of a person in a state of lowness and collapse, when restlessness and extreme anxiety prevail. It appears to me, that the great discrepancy stated in the results of eudiometric experiments on the respired air of healthy persons; when those who conducted the analyses were men of equal eminence, and undoubted accuracy; must have arisen from their not having observed similar precautions in collecting the air for their operations.

Several phenomena of the disease, as well as the result of chemical examination of the expired air, afford reasons for concluding, that among the important lesions of function which take place in cholera, the decarbonising power of the lungs is affected to a very great degree: more especially in those cases which are attended with early collapse and coldness, and are void of any febrile and inflammatory symptoms.

When we can succeed in bleeding a man, who is in the state of lowness and collapse, while torpor is impending; we find the blood is generally thick,

black, and tarry, trickling down the arm in a slow and unsteady stream; and the flow very often entirely ceases as soon as the veins of the fore-arm are emptied. This blood usually coagulates into an uniform mass, without separating any serum; and the surface of the cruor, after standing till it is cold, becomes somewhat more florid than when first drawn. In other cases, the dark-coloured blood separates a small quantity of reddish serum, which exhibits no peculiar character except its colour: and when heat is applied to this discoloured serum, it forms a firm, dry, friable coagulum, which in a few instances is of a pale, dusky-green colour. When cholera is attended with febrile symptoms, the blood generally separates into serum and crassamentum, nearly as in healthy subjects, though the quantity of serum varies considerably, and sometimes the surface of the cruor is remarkably florid: not unfrequently it exhibits the buffy coat, indicative of local inflammation; several examples of which will be detailed. I acknowledge having two or three times seen the cruor quite florid, and still the patient has rapidly sunk into a cold and torpid state after the V. S., and although the blood flowed freely, the patients were lowered, and made worse by it: but this florid appearance of the blood in cases of cholera, attended with coldness and collapse, has been so rare, as not to have allowed sufficient opportunities of ascertaining satisfactorily all the circumstances connected with it, in such cases as have terminated fatally.

When the kidneys continue to secrete during cholera, the urine appears to be nearly the same as that of a healthy person, in containing urea, and the ordinary salts of the urine: whether exactly in the usual proportions, I have not been able to determine. In some cases, the small quantity of limpid urine first voided after a suppression of that secretion for several hours, appeared to contain a large quantity of animal matter; and the putrefactive changes were observed to take place in it very early.

In the assemblage of symptoms which constitute the early stage of a sudden invasion of cholera; we observe evidence of the disorder, or total cessation of the functions of those organs, which are supplied with nerves by the pneumo-gastric, and from the great solar plexus. In those cases tending to early collapse and coldness, the liver and kidneys cease to secrete as usual; the digestive powers are arrested; the mucous membrane of the stomach and intestines has its secretions altered; and although respiration continues, the decarbonising process so essential to health and life, appears often to be very imperfectly performed.

It appears to me that the impaired state of all these functions ought to be considered, not as the causes of the disease, but as incidental effects of the invasion of that formidable malady, and which tend materially to accelerate the fatal event, or to retard recovery, and therefore requiring to be alleviated when that is possible.

The most undeviating phenomena of cholera, attended with early collapse, are the recession of blood from the surface of the body, and its accumulation in the great veins of the abdomen and thorax; a gorged state of the capillary vessels of the lungs; and disordered secretion from the mucous membrane of the intestinal canal: at the same time, that the lining membrane of the bronchial tubes and cells of the lungs is occasionally much loaded with mucus.

In cases not fatal, the progress of recovery is often almost as rapid as the accession of cholera: and if the disease be promptly treated at the very onset, it is not uncommon to see a person well on the third day after an attack of the worst symptoms, which had commenced with coldness and collapse; and who, if left without remedies, would probably have died in six or eight hours. In these instances, recovery seems almost as sudden and complete, as in cases of patients who are resuscitated after suspension of animation from submersion in water.

We see a person suddenly attacked with vomiting and purging, the evacuations being of that description usually denominated true cholera-stools: he quickly becomes cold, and has a rapid feeble pulse: we know that if left to the course of nature, or if supplied with a few glasses of cold water, this patient will be in a hopeless state in a few hours; whereas, if he take a table spoonful of tincture of rhubarb undiluted, or a tea-spoonful of laudanum, and as much spirit of sal volatile, in an ounce of water; or two grains

of opium with ten grains of blue pill ; immediately on the first attack, the disease is very often at once arrested.

Many of the febrile cases, especially those where there is a dry tongue and feverish flush of the face, are slower in arriving at complete convalescence ; and we have occasionally sufficient evidence, that, besides the disordered functions, and congestion with incipient inflammation, of the early stage ; there is a decided tendency to slow inflammatory condition of several internal organs, at remote periods. When reaction commences, it is irregular, and I have seen one eye suffused with bright arterial redness, while the other eye was yet pale.

Patients, who remain without pulse at the wrist above three hours, seldom survive the attack ; though we sometimes succeed by means of ammonia, camphor, asafoetida, and small quantities of opium combined with warm resinous purgatives ; and some stimuli of spices, wine, or spirits ; to resuscitate the pulse, and restore the warmth of skin, in patients who have been a whole day cold and without pulse at the wrist. Yet the majority of those so excited, ultimately expire, after lying a longer or shorter period, sometimes several days, in a half-torpid state, without either spasms or purging : while in this torpid state, they suffer much nausea, and continue to vomit whatever fluid is drank ; throwing up every eight or ten minutes, almost without effort, some yellowish green bile, which is spat over the bed-clothes

and floor, without moving the head. While this condition lasts, an attempt to sit up in bed causes faintness. This is almost as hopeless a condition as a cholera patient can fall into : in cases of this sort, free blood-letting, or an active purgative is apt to sink the patient irrecoverably : stimulants excite fever, and hurry on the fatal termination. By whatever mode these cases are treated, the most intense gastro-enteritis is found after death, and the intestines are loaded with a great quantity of bile and dark-colored secretions. A few of these cases recover by the cautious application of leeches, as soon as the state of the patient can bear them, without sinking the pulse. Repeated V. S., to a moderate extent, is sometimes requisite in the latter stage of these cases ; and perseverance in a steady course of resinous purgatives, with the mildest food in small quantities, supplied very soon after the first effects of each purgative. An emetic, and particularly a sulphate of zinc emetic, is sometimes found, in such cases, to produce a beneficial change. In other cases, which have been resuscitated by stimulants, after long-continued collapse, as above stated ; a febrile condition follows, with frequent weak pulse, and lurid redness of the face, resembling the remote stage of bad cases of congestive remittent fever.

The suddenly fatal termination of cholera, in some of the cases, which commence with extreme collapse, seems to depend on the intensity of the efficient cause of the disease, acting so powerfully on the

nervous system, as to produce total arrest of all vital energy; and death, as it were by suspension of animation: cessation of vital actions taking place with hardly any preliminary course of disease. Many others die from venous congestion, with a remarkable stagnation of the blood in the great veins of the internal parts of the body, and cessation of most of the secretions; combined with a less degree of that sort of shock of the nervous system, which produces the sudden termination just described. The fatal event at a still later period, has more or less of local inflammation superadded to congestion; and combined with the remains of such disorder of the nervous system as in its more intense degree causes early death.

While a rapid and weak pulse continues, with coldness of the extremities, though there be not much purging and vomiting; the patient must be deemed in the utmost danger.

The severer cases of cholera, with early coldness and collapse, tending to sudden death without reaction, have been already alluded to; and the absence of inflammation of the stomach and intestines, in many of those cases, has been pointed out. The peculiar nature of that description of cholera is still more remarkable, when we observe the same stage of that disease attacking dysenteric patients, who had been for many days voiding bloody stools; but who on being seized with cholera, cease to void blood, and their evacuations change to the fluid resem-

bling rice-water; examples of which may be seen in the case of Post, which is inserted at p. 142 of vol. I. and of Cox, which is mentioned in this chapter, affording evidence of the fact, that the circulation in the capillary system of vessels of internal organs in the febrile cholera, is in a state totally different from what takes place when the cholera with sudden coldness and early collapse comes on, in which the essential character of the disease consists in great accumulation and stagnation of blood in the veins, and principally in the great internal veins. Robust and plethoric subjects, suffering from this form of disease, also exhibit strong marks of stagnation of blood in the smaller cutaneous veins; affording the appearance which has been denominated the blue cholera: a state of disease often existing in the most intense degree, when totally void of inflammation.



MORBID APPEARANCES ON DISSECTION.

The appearances observed on the inspection of subjects that have died of cholera, are various; according to the nature and duration of the illness, and the circumstances that have preceded and accompanied the attack. In the damp hot climate of Bengal, we are obliged to perform our dissections at an early period after dissolution, generally from 3 to 12 hours. And it has frequently occurred to me to ob-

serve, that bodies are warm for some hours after death, although the persons, while suffering under cholera, had been exceedingly cold for several hours, and sometimes more than a whole day before they died. The exterior of bodies, after death from cholera, is generally found livid from the stagnation of venous blood in the capillaries, especially about the chest and neck : and still more so at those parts which are dependent, and liable to be discolored by the gravitation of blood. The muscles are generally rigid, and of a lurid red color ; and robust subjects are seldom emaciated by those attacks of cholera which are fatal after a short period of illness. But even in these, the eyes are sunk deeply into the sockets, and the fingers, hands, and feet, remain shrivelled. In a few weak and emaciated subjects, the surface is whiter, and corrugation of the skin is more extensively visible.

The most common morbid appearances in the viscera of those who die after an illness of only a few hours, are a pale color of the stomach, when viewed externally, and a thickening of its coats, which feel like a thick new doe-skin glove : its interior is also sometimes quite pale, but generally of a pink color, in patches of various sizes, and covered with a thick, tenacious, viscid, mucous secretion. The mucous membrane of the stomach is often much corrugated into longitudinal folds ; and when its secretions are seen not tinged by medicines, they are usually at this stage of the disease, a pale-grey

colour; frequently the stomach is relaxed, and this secretion is then in very large quantity. The small intestines are of a pale pink color, which in many cases could hardly be deemed morbid, their coats are often thickened and pulpy, as if œdematous; the villous coat is sometimes quite pale: the contents of the small intestines usually consist of a whey-like fluid, and a thick curdled mucus, in various proportions. More rarely we find the small intestines loaded with quantities of a substance resembling a thick paste of flour and water, and occasionally there is a fluid like gruel, or the sediment in barley-water. At the early stage of the disease the great intestines are usually of a pale bluish color, with little or no vascularity: their coats are frequently remarkably thin; and their contents, copious and watery, or like rice-water, in which some films of mucus are floating. The great portal and mesenteric veins, and the venæ cavæ, are turgid with blood. The liver and spleen are generally tumid from venous congestion, especially if the subject be plethoric. The gall-bladder is found to contain bile of various shades of green, usually somewhat inspissated, but frequently appearing in a healthy state. In a few emaciated subjects, where the watery purging had been very profuse during life, and the extremities had remained much corrugated after death; the peritoneal coat of the abdominal viscera was sometimes dry, and not covered with the usual lubricating serosity; the whole of

the viscera seeming shrunk and bloodless. The cavities of the heart are usually distended with black blood. The lungs generally exhibit a degree of venous congestion, which, at the depending parts, is much increased by gravitation. The bronchial tubes in some cases are filled with frothy fluid ; in others, these tubes are lined with a tenacious mucus of a very viscid description, which when scraped off and collected, resembles a thick paste of wheaten flour. This latter appearance was usually found in cases where the voice had been feeble and *pectoral*, and it has been certainly more commonly met with in the cold season: suppression of the voice occasionally occurs when this morbid bronchial secretion does not exist. Venous congestion in the brain and spinal marrow was found to exist to a remarkable extent in those who were plethoric; but it is often inconsiderable in emaciated subjects. The bladder was usually contracted : it generally contained about two ounces of limpid urine ; and a small quantity of white mucus can in most cases be seen on its internal surface.

The above morbid appearances of the viscera, in cases of cholera, which prove rapidly fatal, are supposed to be the vestiges of a much higher scale of vascular turgescence during life : but this is doubtful.

When the patient has lived longer, and cholera has been attended with violent and painful spasms ; but more especially, when a prolonged disease has been marked by any febrile symptoms, the conges-

tions above described, are attended by distinct appearances of inflammation of the small intestines. The omentum, mesentery, and mesocolon present a high degree of morbid vascularity : the mucous membrane of the stomach is more extensively and more highly colored with red, and this is often the case when on examining the exterior of the stomach, it is still pale, and its coats are much thickened. In some of these subjects, the coats of the small intestines are found thin and diaphanous, so that masses of viscid mucus, deeply tinged with green bile, may be seen before opening the gut ; and in these cases, there is usually much flatus with some pale-grey fluid in the small intestines. Proceeding to speak of those who have survived to the 3rd, or 4th, or 5th day ; inflammation of the intestines is more distinct and extensive : the small intestines are then found to contain quantities of viscid mucus of various colors, and green bile ; the large intestines are filled with dark-grey, dark-brown, or black thin fluid. The morbid appearances in the ulterior stages of febrile cholera, very much resemble those seen in the dissection of subjects who have died during the remote stages of remittent fever.

Some of those in whom the disease begins with early sinking and deadly coldness, survive that stage for two or three days ; having a slight degree of lurid redness of the face, with ineffectual re-action of the system, marked by returning warmth of the skin and an improved state of the pulse ; but they are in-

clined to faint, when in the erect posture : such cases are often found to sink into a state of stupor, and die on the 4th or 5th day. Dissection then shews much venous congestion of the brain ; a great degree of vascular engorgement of the lungs ; and a general lurid redness of the small intestines, which in some cases approaches to a mahogany color ; though no congeries of minute vessels is to be seen : we are inclined to speak of this state, as mortification of the muscular fibres of the intestine ; for the intestines are very easily torn, and the cœcum is usually strongly marked by the lurid appearance of its coats, which are thin. In such cases, the contents of the large intestines are mostly a chocolate-colored fluid.

When febrile and spasmodic symptoms have predominated, we occasionally find intus-susceptions in the small intestine, and still more frequently, portions of that part of the canal contracted to the size of the little finger : the contracted portion of the intestines is sometimes red, but more commonly paler than the rest. I have very often seen a contraction at the sigmoid flexure of the colon, of a foot in length, without any morbid vascularity at that part ; the mucous membrane at the constricted part being exceedingly corrugated and almost dry. Lumbrici are occasionally found in the intestines.

In the dissections of cholera subjects, I have sometimes met with morbid appearances, which would not seem essentially the result of the disease ; and

they probably have been influenced by circumstances in which the patient was placed prior to, or during the commencement of the attack. In the post-mortem examinations of sailors who were seized with cholera in the bazaars, where they had been much exposed to the sun, and in habits of dissipation; a considerable serous effusion has been found between the arachnoid and pia mater, over the whole convex surface of the brain; and frequently there is serous effusion below the tentorium, and in the spinal canal. The same appearances have been observed in the post-mortem examination of the bodies of sober people, in whom cholera came on after much exposure to the sun, and proved fatal. These patients have generally soon sunk into a torpid condition, without much suffering from spasms; they quickly became cold, and died within fifteen or sixteen hours after the attack commenced. The sailors of the H. C. ship *Bridgewater* were exposed to severe privations and much hard work, during a succession of gales of wind on the homeward voyage from China, and the ship was so much injured, that she was brought to Calcutta. Soon after the crew had landed, in June, many of the men were attacked with cholera, which quickly proved fatal to several of them. On dissection, serous effusion was found between the tunica arachnoidea and pia mater, on the upper part of the hemispheres of the brain; and in some of the cases a large quantity of serum in the lateral ventricles. On several occasions,

when ships, in coming up the river in the rainy season, have got aground, or lost their anchors; whereby the crew have been obliged to work hard, and were much exposed to the weather, and probably at the same time living irregularly; the sailors have been attacked with cholera; the peculiarities of which consisted in the patients having in several cases tympanitic distension of the belly, cold hands, and hot feet. On dissection, acute inflammation of the colon was found, besides the other morbid appearances common in cholera.

CAUSES OF CHOLERA.

The cause of the more frequent appearance of cholera for some years past, is unknown; and we are unacquainted with any circumstances which are sure to produce the disease, or by the avoidance of which, residents in India can be certain of always escaping its attack. Cholera occurs in Bengal at all seasons of the year, and under all circumstances: people who live in the best houses, avoiding excesses of every sort, and who are exempt from any species of privation; are occasionally liable to be seized with the worst forms of this malady. However, we have abundant proof that the disease prevails most among those who reside in low and ill-ventilated situations, exposed to a humid atmosphere and sudden changes of weather; who are frequently using ill-cooked or

bad food ; and who indulge in eating cold or unripe fruits, more especially, if they be at the time exposed to fatigue and unusual privations. The depressing passions, doubtless, have much effect in rendering people more liable to an attack of the disease. People with impaired constitutions, or who are in a state of debility from any cause, are more liable to cholera, than the robust and healthy : and it is certain, that persons recently arrived from Europe, are very susceptible of an attack, if the disease happens to prevail at the time in the vicinity of their residence.

Mr. Hitchcock's account of the cholera on board the H. C. ship *Abercrombie Robinson*, exhibits an excellent example of the proclivity, which debility and impaired health induce to attacks of the worst and most untractable descriptions of cholera. That ship, direct from Europe, arrived at Bombay on the 4th June, 1828 ; and sailed from thence for China on the morning of the 10th of August : during this long detention in harbour, the greater part of the crew had suffered from the ordinary diseases of Europeans on arrival in hot climates, by which the constitutions of many of the men had become impaired.

On the morning of the 10th. of August, before the ship sailed, the boatswain had a violent attack of spasmodic cholera ; and no other case of the disease appeared till the night of the 12th, when two of the crew were taken ill with the low form of cholera,

attended by early collapse, but did not report their illness till next morning. In the course of a few days, 38 men were attacked with the disease.

Of these, ten men were at the time in the sick list, and they all died; ten more were weak, and in bad health, in consequence of former illness, while in Bombay harbour,—of these, seven died, and three recovered; the remaining 18 were well, and at duty when attacked,—of these, seven died, and eleven recovered. The men who first fell ill, with the exception of the boatswain, had the low form of the disease, which commenced with collapse; those occurring at a later period, suffered from the inflammatory and febrile form of cholera. Mr. Hitchcock's narrative is a very complete account of a local epidemic attack of cholera: it exhibits all the circumstances connected with the disease on board a ship, whose crew consisted of about 150 men.

Sudden decrease of temperature appears to be among the most frequent exciting causes of cholera; for we find it has commenced generally between 2 and 5 o'clock A. M., when the cold damp air is most sensibly felt in this country. Men are often attacked soon after exposure to rain, when they are fatigued; and many awake ill with cramps and other symptoms of the disease, after having slept in damp clothes. Soldiers, on fording a river early in the morning, though the water be not a foot deep, are apt soon to fall ill of cholera, and this is more commonly the case if they have marched several miles previously, so as to be

heated and fatigued before they pass the ford ; more especially if active exercise be not continued for some time afterwards : and men who have encamped on the low damp bank of a rivulet, are often attacked in the night, or early in the morning. Hard work, and exposure to the sun and rain alternately, seem occasionally to bring on the disease : and a large dose of saline purgative has frequently excited an immediate attack. When three or four severe cases of Cholera have happened about the same time, at different parts of the town, we know that any man who takes an active saline purgative, is very likely to suffer from that disease, attended with early collapse. Severe cases of dysentery, or even slight diarrhœas, are apt in the most sudden manner to lapse into the low form of cholera ; at those times when the latter disease is prevailing in the vicinity.

Drunkenness has been followed by a severe form of the disease among large numbers, as happened in H. M. 14th Regiment, in 1828, at Berhampore ; where, after a distribution of 15,000 Rupees prize-money to the soldiers of the regiment, 94 cases of cholera appeared within a few days, of whom 20 died. Of these 94 patients, 45 had been from nine to fourteen years in India. A valuable and minute detail of this local epidemic visitation of cholera, by Dr. J. Mouatt, now Surgeon of H. M. 13th Lt. Dragoons, will be found in the 4th vol. of the Transactions of the Medical and Physical Society of Calcutta.

The disease has been ascribed to unwholesome exhalations from the earth ; and there seems some reason for believing, that the cholera in India may be ascribed to a distempered state of the atmosphere ; which we have no means of appreciating, except by its effects : as we judge of the presence of malaria in the case of intermittent fevers. We know that at times every slight ailment seems convertible into cholera of the most rapid and fatal description ; among the inhabitants of a station where the disease had not previously existed, and where it cannot be traced to the arrival of sick persons, or to any mode of imported infection ; the disease appearing about the same time at various and remote parts of the town, among persons of the most opposite habits of living, who have no direct or indirect communication with each other : as was the case in Calcutta in 1830, and on several other occasions. Strangers coming to a town, when a general proclivity to cholera exists, are very liable to the disease, especially if they happen to arrive after suffering fatigue and privations, and just when the local distempered state of the atmosphere, with the usual exciting causes, are about to affect the residents of the place. Persons with any disorder of the digestive organs, arriving at such a time, may become the first sufferers ; and thus the probability of imported contagion is suggested : though a strict investigation of the circumstances in detail, may be sufficient to negative any idea of contagion.

A local epidemic influence seems sometimes to exist, to such degree, that almost every person who comes within its range is attacked with diarrhœa or cholera, while those who are removed only to a short distance remain free from any ailment.

If we examine critically the circumstances connected with any attack of epidemic cholera at a station, we find reason for concluding, that the disease is dependent on some morbid influence connected with the locality ; for it often happens, that a short time before the appearance of numerous severe cases of cholera in a town ; a disordered state of the digestive organs, and tendency to diarrhœa, and nausea from slight causes, has been observed among numbers of the inhabitants ; after which, the epidemic cholera bursts forth suddenly, and affects numbers of persons at the same time. Those who are sickly and predisposed are destroyed in three or four days, and at the end of a week, the more severe form of cholera disappears.

On the 11th of May, 1818, a company of Bengal troops, 90 in number, encamped at an unhealthy spot on the bank of a small lake, sheltered by a few trees, and surrounded by low woody hills. The detachment arrived at this place all in perfect health ; cholera commenced at midnight, and before sunrise next morning, 20 men were ill of that disease : they were removed to the Saugor camp, in carts and doolies, in the course of the day ; but before arrival there, five men had died, and two more were mori-

bund. By the end of the week, every man of this detachment had gone to hospital with cholera; or with a purging of some sort, resembling modifications of that disease: so that there could be no doubt of the malignity of the malady from which they were suffering. The men of this detachment had unrestricted intercourse with the troops in camp; not one individual of whom was attacked with cholera. *See Jameson's Report on Cholera, p. 133.*

These and similar facts afford the grounds on which we should be disposed to ascribe the Epidemic Cholera to some morbid influence connected with locality, sudden changes of temperature, and humidity; more especially, when these morbid causes have to act on persons debilitated by disease, or fatigue and privations. Troops having marched through an unhealthy district, and who have been subject to much exposure, fatigue, and privations; are very liable to the disease; both on the march, and when they halt; whether they join a healthy or a sickly camp.

Although Cholera has been ascribed to the causes above stated, we often see patients vomiting violently for hours, and others purged profusely for several days, without cholera coming on: intemperance to the utmost extent, exposure to atmospheric vicissitudes, and all the other exciting causes above enumerated, often exist to an extreme degree, and the disease does not follow. The same observation may be made with respect to many diseases which are

influenced by atmospheric vicissitudes. We cannot give any reason why exposure to sudden changes of temperature, in England, causes Rheumatism to prevail in one year ; Ophthalmia in another ; Catarrhs in a third ; and Fevers in a fourth. Therefore, we must acknowledge, that some other cause, is essential to the production of epidemic cholera ; since we see that those circumstances, which seem to be efficient in exciting an attack in one year, are not productive of the disease in the next.

We cannot ascertain why the causes usually exciting cholera do not invariably produce the same effect ; and why numbers of persons are at times exposed to all those circumstances which at other times excite the disease, and still cholera does not appear among them. However, as already observed, the same immunity frequently happens when persons are exposed to the ordinary exciting causes of fevers, and many other diseases ; concerning the proximate cause and essential nature of which, we can hardly boast of knowing more than we do of cholera.



TREATMENT.

IN the treatment of Cholera, it is of the utmost importance that remedies be employed early ; and that they be varied with careful reference to the nature of the attack, and the existing stage of the disease ; for the utmost vigilance and discrimination

of the practitioner are often defeated. The cases which will presently be adduced, as well as the various accounts previously published in Bengal, shew us a great class of diseases to which the name *Cholera* has been applied. The whole of these have more or less of a common character so distinctly marked, that we rarely hear of a difference of opinion among practitioners concerning the identity of the disease : and still in some of the individuals of this class we find the prevailing tendency of the complaint, not only different, but diametrically opposite to what constitutes its predominant character in other cases. If the diseases which are acknowledged to be cholera, were so ranged on a scale, as to place those cases which have most affinity, together ; and those most dissimilar, at a distance ; we should find one end of that scale occupied by diseases in which the actions of the constitution are distinctly febrile, and in many of them the evidence of local inflammation is as strong and unequivocal, as in the most intense examples of gastro-enteritis. At the other extreme of this scale, we should find the prevailing characters of the disease, as already stated, consisting in coldness, depression of vital actions, and extreme venous congestion ; with tendency to sudden death, not preceded by much active disease. Between these two extremes, namely, the purely asphyxial state on the one hand, and the distinct inflammatory condition on the other, every possible variety exists : the disease with early collapse and

coldness, generally combines an intense degree of congestion of blood in internal organs, with some remote tendency to inflammation of the intestines, and sometimes of the brain, (though the latter is rarely observed to occur in Bengal ;) while the febrile cases, and those which are marked by distinct evidence of local inflammation, are by no means void of congestion, and they frequently lapse suddenly into the low state, with coldness, and the most awful prostration of vital power. Our watchful attention to the course of the disease is urgently demanded, on account of this occasional tendency to sudden change; lest we be misled, and induced to use depletion, by V. S., or other means, at a time when such treatment may be injurious. It will be evident, that the treatment of cholera must be varied according to the nature of the disease.

In the febrile and inflammatory stages of this disease, attended with violent and painful spasms, warmth of surface, and free circulation; our chief dependance must be on V. S.—leeches are also often applied with great benefit; and purgatives of calomel or blue pill, with cathartic extract, alternated with castor oil, must be repeatedly administered until evacuations of a healthy appearance are procured: and in a few of these febrile cases, we may venture on jalap and scammony at remote periods of the disease. The earlier a case of cholera of this description is bled, the more certain and effectual is the relief which is obtained. While those patients, who come under

treatment at a late period of the disease, even though distinctly marked inflammatory symptoms be present, require great caution in the employment of depletion ; and still they are almost certain to die, if antiphlogistic treatment be omitted. Opium is admissible for one or two doses, in small quantity, at the onset of these febrile cases, when watery evacuations prevail ; but except for the purpose of allaying the dreadful commotion of the system, and of arresting profuse purging : we derive little benefit from this remedy. Nothing relieves the spasms attendant on the early stage of febrile cholera, so effectually, as the lancet.

There is a more remote stage of the disease, in which local inflammation takes place ; appearing sometimes to be excited by premature return to a diet of animal food, and in other cases, to arise without any evident cause : we are obliged then to use the lancet, and to purge the patient freely, as in an ordinary inflammatory fever. At the same time, a word of caution is requisite ; lest the inexperienced practitioner should mistake for fever or inflammation, the transient and ineffectual re-action which often occurs just before death ; attended with morbid heat of the forehead and chest, while the patient is torpid, blue, and restless ; for vain attempts have been made to cure these cases by bleeding. The least that can be said of such treatment, is to acknowledge its total inutility.

Where the evacuations have been profuse, it is always advisable to give a small quantity of thin sago, or arrow-root; as soon as the stomach will retain it; and the employment of some food of this sort need not interfere with the general antiphlogistic plan above stated.

The majority of these febrile cases can generally be saved, if seen early, and treated with careful discrimination and perseverance.

Blood-letting, as above directed, in those cases of cholera which are attended with a febrile or inflammatory condition, and a dry tongue, is demanded by indications which are sufficiently distinct; and under such circumstances the practice is in general singularly successful, and V. S. may be deemed essential to the cure of the disease, especially if it be employed in conjunction with other appropriate remedies. Blood-letting has also been proposed and employed in the treatment of the congestive form of cholera, for the purpose of relieving the oppression of the system dependent on the accumulation and stagnation of blood in the great vessels; and for alleviating the gorged and torpid state of the capillary circulation in some organs. The free abstraction of blood would appear to be an appropriate remedy for the morbid condition now adverted to, if the principal part of the malady with which we have to contend were essentially congestive. But unfortunately, in many cases we meet with *congestion, and something more*. The best indications for employing

blood-letting with precision and success, in congestive cholera, arise from the consideration of the state of the system, which is combined with, or superadded to congestion. Practically, it is often a matter of great difficulty to use the lancet in all those cases which will derive benefit from it, and in no others. As a general rule, we may say that V. S. is useful in most cases in which congestion takes place early, and is attended with violent and painful spasms, more especially if there be warmth of the surface, and the action of the heart and arteries be not too much impaired. Under these circumstances, the system still retains a degree of sensibility, action and power; and the abstraction of blood not only takes off the load which oppresses the vascular system, but enables the heart and arteries to act with healthy freedom. Blood-letting on the contrary rarely affords efficient relief in cases of congestive cholera after collapse has supervened at a late stage, when the patient is exhausted by long continuance of the disease, and when the system is drained of the watery parts of the blood; at the same time, that the nervous system has already sunk into a state of torpor. In fact, the abstraction of blood under such circumstances, does not remove that condition on which the important or dangerous symptoms depend. There are many cases in which torpor, coldness, and collapse come on at the moment of the invasion of the disease; and in these subjects, we derive no benefit from taking away the mechanical obstruction caused

by stagnation of the blood, unless we can restore vital energy, excite arterial action, and promote a healthy state of the secretions. For this reason, we find that blood-letting, even in the early stage of that form of cholera, in which asphyxial symptoms predominate, is not generally useful, and is often injurious. In the mixed cases of cholera, the judicious employment of blood-letting, in combination with stimulants, and one or two doses of opium, affords the most successful results.

In the low description of cholera, where the vital actions fall early into a state of torpor and collapse, with profuse cold perspirations; we have a much more formidable complaint to contend with. There is but little time for consideration in this form of the disease; it is rapid in its course, and deadly in its tendency: and the most judicious treatment that can be adopted, too often fails. It is requisite in the first instance to restrain the profuse evacuations, at the same time that we endeavour to uphold the feeble remains of vital energy, and as it were to resuscitate the patient, otherwise the susceptibility to remedies, is speedily extinguished. For this purpose, it is necessary to give some opium with stimulants. If the patient be seen very early, and the vital actions have not been much sunk; half a grain of opium with six grains of blue pill should be given every half-hour, while frequent purging continues; and two ounces of hot sago with one ounce of brandy may be taken after every second dose of the pills. In the early stage of

those cases where cholera symptoms have supervened suddenly on diarrhoea ; and the requisite remedies have been promptly administered ; we often see patients whose tongues have been cold, the eyes sunk, and prostration extreme, entirely altered in two or three hours, warmth being restored and all appearance of danger removed, and we have then to manage diarrhoea with slight febrile symptoms. But after a few hours continuance of the disease ; and when the pulse has become low and weak, and the voice feeble, it is necessary to use more active remedies ; at the same time, we must always bear in mind the possibility of overpowering the system, either by opiates or spirituous stimuli, at a time when the vital actions are sinking into a low and feeble state. I have seen in these cases, prompt and effectual relief more frequently afforded by opium than by any other remedy. But when this medicine is likely to do good, all the benefit derivable from it, follows quickly after taking one or two doses ; and it is more appropriate for those cases attended with profuse watery purging, than in others. From two to four grains of opium in a pill, sometimes arrest the most formidable symptoms. In other cases, where the pill is immediately rejected ; the same quantity of opium dissolved in cinnamon water, and mixed with 3 i. of spirit of sal volatile, proves effectual. It is advisable to make the patient drink a cup of hot sago, with some brandy or wine, as soon as the more distressing symptoms are moderated. If this be retained,

and tranquillity with sleep follow, we may entertain hopes of recovery.

Mercury alone is not of much use in extreme cases of *congestive or blue cholera*, without febrile or inflammatory symptoms ; in such cases, stupifying quantities of spirituous stimulants, like stupifying doses of opium, decidedly hurry on the fatal event ; and indiscreet use of the lancet has certainly in some cases shortened life. I have, in some very bad cases of the low form of Cholera, been so far influenced by these considerations, as to abstain from the free use of calomel ; to stimulate with Ammonia*, and to use only small quantities of spirits or brandy, trusting to the warm resinous purgatives, given alternately with castor oil, and enemata : enjoining tranquillity, and supporting the system by mild farinaceous food in small quantity.

Under very unfavorable circumstances, our early remedies do not produce immediate benefit ; and although the vomiting and purging are arrested, or have been from the first less urgent ; we find the lowness and coldness are not removed. The thirst is extreme, pulse feeble, and 120, or even more frequent ;

* Mr. Steart has used the *Liquor Ammoniaë Puræ*, with singular success in the early stage of that form of cholera which is attended by collapse, among the natives at Mundlairsir. I believe Mr. S. is the first practitioner who has trusted principally to this remedy, and tried it extensively. An interesting account of his successful practice will be found in the 6th volume of *Transactions of the Medical and Physical Society of Calcutta*.

at the same time a weak and pectoral whining voice, indicates the impaired function of the respiratory organs, and the inward distress of the patient. In such cases, frequent repetition of opium is apt to stupify the patient, without effecting any other purpose; and spirits too often seem to overpower him, and to render recovery hopeless. *Liquor Ammoniae Puræ** is the best stimulant in such cases: I have given 3 i. every hour in 3 iiss. of water, for eight doses; and a similar quantity has been repeated afterwards every two hours, until the circulation has been restored, and the warmth of surface has returned. An infusion of Cayenne Pepper may be made in the proportion of 3 ii., to a pint of boiling water; and a table-spoonful given every half hour, alternately with the *Liquor Ammoniae*. If the patient be calling aloud for drink; instead of giving brandy and water in such cases, I prefer letting him have an infusion of ginger, which is to be made in the proportion of 3 i. of the recent ginger root to the pint of boiling water; and a wine-glassful may be

* I consider ammonia the best internal stimulant, in cases of approaching torpor, when repeated doses are requisite; it is more effectual, and safer, than either opium or brandy. I have also tried enemata of four and six pints of hot-water, containing ammonia in solution; with the view of stimulating the system, and at the same time of washing away from the great intestines, the tenacious paste-like secretion, which they contain. These enemata were employed only in the most hopeless cases, when other stimuli had failed; therefore they were generally unsuccessful.

allowed every half hour, either tepid or cold, as the patient likes.

The period at which stimulants can be administered most successfully, is at the very commencement of collapse, when cholera shows itself in that form from the beginning; and before the system has suffered from profuse evacuations by stool, and from a long continuance of the disease. The collapse which comes on slowly after profuse evacuations, as well as the debility which often supervenes at the latter stage of febrile cholera, can rarely be treated with benefit by strong stimulants; and although mild nutritious food, that is in a slight degree stimulant, is often essential in the last-mentioned description of cases, still the greatest caution is then requisite in the use of the remedies now under consideration.

While internal stimuli are used, much benefit may often be derived from external applications. European flour of mustard is to be mixed with hot-water, and when made to the consistence of an ointment, about one-eighth part of common salt added: this is spread on calico, and applied to the epigastrium, for one hour; and in very bad cases these sinapisms may be laid across the lower part of the chest, and to the spine, and feet. If the skin retain any degree of susceptibility, this will soon act as a strong rubefacient, and when left on for five or six hours, it blisters severely, which is not desirable. I prefer the sinapism to any other external stimulant: after having tried turpentine, common blisters, and boil-

ing-water, as well as pure nitric acid; and in extreme cases, the red hot iron has been applied to the epigastrium and spine. The mustard plaster, though painful for a short time, is not so irksome to bear as a blister, and it is free from the appearance of cruelty and harshness, which is an objection to some of the other external stimulants just named.

If we are so fortunate as to arrest the progress of collapse which threatens sudden death, the patient generally sleeps for some hours. The subsidence of urgent symptoms should make us satisfied to wait for three or four hours; and then we must give some mild aperient medicine every four hours, until the bowels shall be made to act moderately. For this purpose, castor oil should be given every eight hours; and in the intervals, 12 grains of compound extract of colocynth, with six grains of blue pill, and two grains of aloes, in 4 pills. If a tendency to the low stage of the disease continue, I order only two of the pills, and add two drops of cinnamon oil, or of the oil of peppermint to each dose. A small quantity of brandy and water may also be given. It is requisite to support the patient with sago, arrow-root, or other farinaceous food; and give wine in small quantity, or to omit it, according to the indications of pyrexia, or of local inflammation.

After a patient begins to recover from the stage of collapse; the disease seems to balance between a return of the lowness, and the accession of fever with inflammation: the former condition is the most

to be dreaded ; it may be brought on by cold drastic purgatives, untimely bleeding, copious draughts of cold water, or by imprudent exertion in attempting to rise to stool. After all that can be effected, by diligence and science, it must be acknowledged that a large proportion of the cholera cases which sink into the state of collapse, are then inevitably fatal.

The domestic management, and accessories to the medical treatment of cholera patients, are very important. The sick person should be placed in an airy room, on a low and rather narrow bed ; that he may be easily and effectually assisted : the room should not be crowded with attendants, nor should the patient be left in a draught of air, but the face may be fanned. If profuse perspirations exist, the surface should be frequently rubbed dry, with hot flannel ; but the whole body need not be uncovered at one time, for this purpose. During the low form of the disease, with decrease of natural warmth, the patient should be placed between blankets, and the extremities diligently rubbed and champed by attendants, whose hands are to be frequently warmed. Tin cases made to hold hot-water, or bottles of hot-water, or bags of hot sand, are often recommended to be placed by the patient's limbs ; but restlessness of the sick renders these means of affording artificial warmth, generally of little avail. It is proper to prevent patients from rising to stool, so long as there is any appearance of collapse, with a rapid

and very weak pulse : and under any circumstances, while copious watery evacuations continue frequent, it is desirable to make the sick remain recumbent, and use a bed-pan. I have many times seen men rise to stool, and after a copious gush of watery evacuation from the bowels, to fall on the floor, sometimes apparently fainting, at other times convulsed : some of these who had not been 12 hours ill, and who had some degree of warmth of surface at the time of getting out of bed, have died within five minutes after rising to stool : having just before that been speaking rationally, though in a state of anxiety and restlessness. When the pulse at the wrist has ceased, or is very feeble and rapid, the patient anxiously tossing about in his bed, and when entire arrest of the circulation seems impending ; any exertion of the patient is likely to prove injurious : either rising to the erect posture, or sitting up in bed, should then be prohibited. The most precise instructions to the attendants, are requisite, regarding the quantity of drink and food to be given : for although a wine-glassful of some drink may be allowed, to any patient in whom it does not quickly excite vomiting, and in febrile cases may be repeated every hour ; a free use of fluids, is almost always injurious. Some cases of cholera are on record, in which the free and repeated administration of cold water, (although it excited vomiting almost as soon as it was drank,) appears to have been followed by a prompt cure

of the disease. However, I have never met with any such cases, and therefore I am unable to point out the circumstances under which cholera patients may be with safety permitted to drink cold water freely.

The following cases are intended to show the nature of cholera in Bengal ; and the effects of the treatment which has been usually employed here. Those in which a febrile or inflammatory condition existed, are arranged first in the series ; though that form of the disease is not always the most frequent in this part of India. After these, are placed, some cases in which it would appear that V. S. was injurious, and others in which it was useless. Then follow some examples of the disease, in which the extraordinary venous congestion, and impeded circulation, were attended with such apparent agony, and laborious heaving of the chest, that although no blood could be procured from the veins, I was induced to hope that relief might be obtained by opening the radial artery ; which was tried, and as much blood obtained as the most urgent advocates for blood-letting in cholera have considered sufficient to alleviate the oppression. Next in order are arranged cases in which the sudden coldness and collapse, with sinking of vital power, were so extreme, either that blood could not be obtained from the veins, or the attempt at V. S. was not deemed advisable ; and therefore the patients were at first treated by opium and stimulants. These examples will

prove that no exclusive rule of practice can be followed; and that the utmost diligence and discrimination are requisite to apply such remedies to each patient as are best suited to the nature of the attack, and the existing stage of the disease.

A case of gastro-enteritis is inserted in the first place to shew how that disease, in some respects, approaches the febrile form of cholera, being marked by the violent vomiting and purging, with spasms in the legs and belly, and sense of debility: but it wants the rapid pulse, conjee stools, suppression of urine, shrivelled fingers, feeble pectoral voice, and sinking of vital power, peculiar to cholera. It is proper to state that many cases of the worst description of cholera occurred in the vicinity within ten days of this man's illness.

CASE CII.—Stephen Drewry, *Æt.* 31. A stout man, with a florid face, recently landed in Bengal: was seized with vomiting, and purging, and pain in his belly, at 8 P. M., on the 21st of May, 1827; but did not send for medical aid till day-light next morning. He was then bled to lb. i., had a blister applied to the epigastrium, and took two grains of opium in solution in an ounce of mint-water, with 3 i. of Spirit. Ammoniae Aromat. He was not seen by me till 8 A. M. on the 22nd of May, when he was brought to the hospital; he was then purged, and felt very weak. Ordered to take—

Calomel.—Extract. Colocynth. Comp. āā gr. v. statim.

Olei Ricini 3 i. at noon.

Vesper.—He has had three stools, the evacuations have not been kept for inspection. Pulse 98 and small, but rather hard; and he is feverish.

V. S. ad lb. i.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. āā gr. v. in two pills at bed-time.

May 23rd.—The blood taken last evening is not buffy; he has had four watery stools during the night, the color of ink. Pulse 102 and weak; there is still a slight flush of the face.

R. Calomel.

Extract. Colocynth. Comp. āā gr. v. at 7 A. M.

Olei Ricini ʒ i. at noon.

Vesper, 5 P. M.—He has had five very scanty, fluid, black stools, since the morning; and he has now pain in the lower belly, and oppression at the chest. Pulse 70, soft, and weak; tongue cool, moist, and clean.

Apply six leeches to the lower belly.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. āā gr. v. Opīi gr. $\frac{1}{2}$, to be taken now.

Olei Ricini ʒ i. at 8 o'clock.

May 24th.—He had several scanty green and yellow stools, since the last report, and has suffered severely from cramps in his legs.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. āā gr. v. to be taken at 7 A. M.

Olei Ricini ʒ i. at noon.

Vesper.—The medicine has produced four stools of yellowish-brown colour; the tongue is cool and

nearly clean : pulse better ; he has some cramps in the belly, but none in the legs.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. \overline{aa} gr. v.

May 25th.—He has voided three bilious yellow stools, in which many films of white mucus are floating. Has now pain in the belly, and slight morbid heat of skin. Pulse 92.

Apply 12 leeches to the belly.

R. Pulv. Rhei \mathfrak{e} i.

After this he took a purgative dose of rhubarb, or of colocynth and blue pill, almost every day, and appeared to be improving.

June 2nd.—He was seized at 1 P. M. with violent pain at the stomach, and spasmodic twitchings in the fingers and toes. Pulse strong and frequent. He was bled to 20 ounces ; the blood on cooling was buffy.

R. Extract. Colocynth. Comp. \mathfrak{e} ss.

Pil. Hydrarg. gr. v. Opii gr. i., misce—to be taken at 6. P. M.

June 3rd.—Pain moderated, but not removed : there is at present slight pyrexia, and the tongue is white ; he has had no stool.

Apply 16 leeches to scrobiculus cordis.

Enema Purg. statim.

R. Olei Ricini \mathfrak{z} iss. at 6 A. M., and repeat at noon.

Six leeches were applied on the 4th, and again on the 5th ; and he took a mild purgative daily.

June 10th.—Pressure over the belly caused pain ; therefore a blister was applied to the abdomen, and

mild purgatives were continued till the 28th of June, when he was pronounced well.

CASE CIII.—Henry Johnson, *Æt.* 40, a sailor of the ship *Cæsar*; of middle size and light complexion; one month arrived from England: admitted into General Hospital at 7 A. M. on the 28th of June, 1830. He has had a purging for 48 hours, and began to vomit at 2 o'clock this morning; the purging has abated since 5 A. M., and he has suffered from cramps in his thighs for the last half hour. The extremities are now warm: pulse 112 and free; his tongue is warm and dry. There is some chronic enlargement and induration of the liver, which can be distinctly felt.

V. S. ad $\frac{3}{4}$ xxvii.

R. Calomel. \mathfrak{D} i. statim sumend.

Olei Ricini $\frac{3}{4}$ i. at, nine o'clock.

Half past 10 A. M.—One cup of the blood taken at 7 A. M. is buffy, the other is not; he has had two stools since admission; they are like rice-water. He complains of dreadful pain at the scrobiculus cordis, and is crying aloud for drink; there is great anxiety, pulse 132, the fingers are shrivelled, but the extremities are still warm; he voids no urine. Allowed 2 oz. of Cream of Tartar drink every hour.

Repet. V. S. ad $\frac{3}{4}$ x.

R. Calomel. \mathfrak{D} i.

Extract. Colocynth. Comp. gr. v.—misce, fiant pil. ii., statim sumend.

2 P. M.—the blood is not buffy; he has had only one return of the cramps since half past 10 o'clock.

There is at present great anxiety: pulse 120 and soft; he has had since last report six copious watery conjee-like stools, in quantity at least eight pints.

R. Pil. Hydrarg. \mathfrak{D} i.

Extract. Colocynth. Comp. \mathfrak{D} ss.

Opii gr. i. misce et divide in pil. iv.

Two pills immediately, and repeated in two hours.

5 P. M.—By mistake the whole four pills were taken at once. He has vomited once since 2 o'clock, and had one pale-grey watery stool, with some flocculi of mucus floating in it. The belly is soft and elastic. Pressure over the abdomen gives some pain. The surface of the body is generally warm; his tongue is warm and dry: pulse 116; he is anxious, and moaning.

Apply 12 leeches to the belly.

R. Calomel. \mathfrak{D} ss.

Extract. Colocynth. Comp.

—— Hyoscyami ãã gr. iv., misce et divide in pil. ii., statim sumendæ.

7 P. M.—He has had one scanty, feculent, dark stool; pulse free, and there is less anxiety.

Repeat the last prescription, at eight o'clock.

June 29th.—He has had during the night one watery stool, of pale-grey color; but no sleep. He is now tranquil, and suffers no pain: pulse 116 and soft; his tongue is dry, and of morbid brownish-red color; the edge of the liver can be distinctly felt: pressure at that part gives slight pain. Tea and thin sago allowed.

Apply four leeches to the region of the liver.

R. Extract. Colocynth. Comp. ʒ ss.

Pil. Hydrarg. gr. v., misce fiat pil. iii. statim sumend.

Olei Ricini ʒ i. at noon.

Tea and thin sago allowed.

Vesper.—He has had four free, feculent, fluid stools, nearly black : pulse 108 : skin rather cool ; he is very thirsty, and has now no pain except in the calf of the right leg.

Extract. Colocynth. Comp.

Pil. Hydrarg. āā gr. v. at bed-time.

June 30th.—Had one stool at night, which has not been kept for inspection : pulse 84 : tongue clean and moist at its edges, but loaded, brown, and dry in the centre ; his skin is cool : belly soft and elastic ; the edge of the liver may be felt as before : the urine is copious.

R. Extract. Colocynth. Comp. ʒ ss.

Pil. Hydrarg. gr. v. in pills at 6 A. M.

Olei Ricini ʒ i. at noon.

After this he took a mild purgative daily.

In a few days more, there was increased tenderness in the region of the liver ; for which reason he was bled to lb. i., and leeches were applied four times ; and by these means he recovered. I was informed that this man had several feverish attacks during the voyage from England to India ; but since his arrival in Calcutta, he had been in good health, and lived on shore at the Captain's house ; he was a sober man, of good character. He was discharged well on the 10th of July, 1830.

In the above case we find that nearly all the worst symptoms of cholera existed in an extreme degree ; the disease was ushered in by diarrhoea of 48 hours' duration, after which vomiting came on, and the stools characteristic of cholera appeared, attended by shrivelled fingers, spasms of the muscles, a quick weak pulse, and cessation of the secretion of urine for two days ; marking an extremely formidable description of cholera, combined with distinct inflammatory symptoms, and a dry tongue.

CASE CIV.—Thomas Cavender, Æt. 30. A sailor of the ship *Roxborough Castle* ; a stout and tall man, of dark complexion ; recently arrived from England : admitted into Hospital on the 26th of October, 1830, at 8 A. M. Stated that he had been purged for three days ; and that he had worked hard in the ship's hold until yesterday. He began to vomit at 10 o'clock last night, and soon after had severe cramps in his legs and belly ; the vomiting, purging, and cramps continue ; and he has been purged often in the palankeen, while being brought to the hospital. Pulse free and rather full ; he is warm, and the eyes are blood-shot.

V. S. ad lb. i.

R. Calomel. ʒ i.

10 A. M.—The blood is not buffy ; he is cool, and weaker ; the cramps are moderated ; the stools consist of water, of a dark-brown color, with little feculence : pulse 96, and weak.

R. Calomel. gr. xii.
 Extract. Colocynth. Comp. gr. vi.
 Olei Menthæ Pip. gtt. ii. to be taken in two pills
 now, and repeated in three hours.

4 P. M.—He has been purged four times; the cramps have returned, and he has pain in the loins; but is considered better, because the warmth of the body is restored, and there is less congestion of the eye-balls: pulse risen, and rather full. The vein was again opened, and eight ounces of blood flowed. He was very faint, and vomited after the bleeding; the blood is not buffy, it coagulated, but no serum was separated.

R. Extract. Colocynth. Comp.
 Pil. Hydrarg. āā gr. v.—to be taken directly—and
 in half an hour let him have 3 oz. Port Wine with sago.

10 P. M.—The cramps continued till $\frac{1}{2}$ past 9; he is now warm and tranquil, but very thirsty; has had two dark-grey stools, moderate in quantity.

Oct. 27th.—He passed a restless night, without spasms or vomiting; had much nausea, and has voided some urine; two fluid black stools have been voided, in quantity about a pint: pulse 86 and moderate; the belly is hot, full, elastic, and pained on pressure; his tongue is moist, cool, white, and very little loaded with mucus.

V. S. ad lb. i.
R. Extract. Colocynth. Comp.
 Pil. Hydrarg. āā gr. v. in pills at 6 A. M.—and
 repeat at 10 o'clock.

Noon.—The blood is buffy ; he has had one scanty, loose, dark-colored stool, and seems better.

Repeat the pills now ; and again at 3 P. M.

Vesper.—He has had three free stools, since noon, and is better.

Oct. 28th.—Had no sleep, but says he feels well ; the tongue is warm, moist, and loaded with white mucus. During the night he had one dark feculent stool, in moderate quantity.

R. Extract. Colocynth. Comp. ʒ ss.

Calomel. gr. v. in pills at 7 A. M.

Olei Ricini ʒ ss. in Aquæ Cinnamomi ʒ i. at noon.

Vesper.—Had three dark, fluid, feculent stools : vomited the oil ; he suffers from pain at the stomach, and anxiety.

Apply four leeches to the epigastrium.

R. Calomel. gr. xii. H. s.

He was better on the 29th, but complained of some pain in the head and chest, unattended with pyrexia ; he took mild purgatives and had an enema which operated slightly ; he passed a bad night. On the 30th of October, he was feverish, and had headache, for which reason six leeches were applied to the temples, and four to the epigastrium ; the head was shaved ; and he was ordered to take,

Extract. Colocynth. Comp. ʒ ss.

Pil. Hydrarg. gr. v. in the morning.

Olei Ricini ʒ i. at noon, and Extract. Colocynth. Comp.—Pil. Hydrarg. aa. gr. v. at night.

9 P. M.—These medicines have produced two dark, fluid stools; he is anxious, and cool: pulse low. Ordered to take,

Pil. Hydrarg. gr. vi—Opii gr. i.

He slept at night; had two fluid stools of natural color; was cheerful and feeling well on the morning of the 31st. In the evening, there was some slight feverishness; and he took,

Extract. Colocynth. Comp.

Pil. Hydrarg. āā. gr. v.

Opii gr. i. in pills at bed-time.

On the 1st of November, he felt better, and had slept, but had no stool: castor oil, or other purgative was given daily; his diet was gradually increased, and he was discharged well on the 14th of November, 1830.

CASE CV.—James Cawson, Æt. 23. A small man, of light complexion; recently arrived in Bengal: ill 12 hours before I first saw him, on his arrival at the hospital, on the evening of the seventh of June, 1827. He was then suffering with violent vomiting and purging, the stools were a clear water, not colored in the slightest degree; he had no cramps; the face was flushed: pulse 92, and regular.

V. S. ad lb. i.

R. Calomel. ʒ i. in pills.

R. Opii gr. ii. Spirit. Ammonizæ Aromat. 3 i.

Aquæ Menthæ Pip. 3 i. misce—to be drank after the pills.

June 8th.—The blood taken last night is slightly buffy; he had four stools during the night, which

are watery and of a pale-grey colour ; he is better ; the tongue is clammy : pulse fuller ; he feels weaker, and has an inclination to vomit.

Apply eight leeches to the scrobiculus cordis.

R. Calomel. ə i.

Opii gr. ii.—misce fiant pill. ii. statim sumend.

Olei Ricini z ii. to be taken at noon.

June 9th.—He had three stools in the course of yesterday ; and three this morning.

R. Calomel.

Extract. Colocynth. Comp. $\bar{\text{a}}\bar{\text{a}}$ ə ss. in three pills, at

6 A. M.

Vesper.—Had two very free stools, and is improving.

R. Calomel. ə ss.

Extract. Colocynth. Comp. gr. v.

Opii gr. $\frac{1}{2}$ —to be taken in pills at bed-time.

June 10th.—Had four brown, watery stools in the night ; says he is well, but his face is flushed : pulse 60 and soft.

R. Calomel.

Extract. Colocynth. Comp. $\bar{\text{a}}\bar{\text{a}}$ gr. v. at 6 A. M.

R. Olei Ricini z i. at noon.

He took a mild aperient daily, and was gradually improving till the 21st : when he appeared feverish, had a white tongue, and flushed face. Pulse 88 and full.

V. S. ad lb. i.

R. Extract. Colocynth. Comp.

Pil Hydrarg. $\bar{\text{a}}\bar{\text{a}}$ gr. v. at 6 A. M.

Pulv. Jalap. Comp. z i. at noon.

This purged him freely ; he took a purgative on the 23rd, and was discharged well on the 28th.

CASE CVI.—Pat. Whelahan, Æt. 27, H. M. 44th Foot, recently landed in Bengal. Was seized with purging early on the morning of the 22nd of May, 1827 ; but he was not sent to the hospital, till 10 P. M. He then had cramps in the limbs ; the purging and vomiting continued, and he had some pyrexia. Pulse 92 and free ; face flushed ; tongue little coated with white mucus.

V. S. ad lb. i.

R. Calomel. ʒ i.

Extract. Colocynth. Comp. ʒss.—misce fiant pil. iii. statim sumend.

May 23rd.—The blood taken last night is not buffy, he has had three copious feculent loose stools ; is very weak and faint ; tongue brownish and moist ; cramps are still severe ; pulse 98 and regular.

R. Calomel.—

Extract. Colocynth. Comp. āā ʒ ss.

Opii gr. i.—misce fiant pill iii. statim sumend.

Olei Ricini ʒ i. meridie.

Vesper.—He had four scanty dark-brown stools, he vomited once during the day ; and is now warm and tranquil, but has some pain at the navel.

V. S. ad lb. i.

Apply a blister to the belly.

R. Extract. Colocynth. Comp.—Pil. Hydrarg. āā gr. v.

May 24th.—He had four stools in the night, and is better ; still has some pain in the belly. Pulse 86 and soft ; the blood is not buffy.

R. Extract. Colocynth. Comp. gr.v. statim sumend.

May 25th.—Pain in the belly remains, with slight pyrexia, and flushed face; pulse frequent; and the tongue is hot.

V. S. ad lb. j.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. \overline{aa} gr. v. at 6 A. M.

R. Olei Ricini $\frac{3}{4}$ i. at noon.

May 26th.—The blood last drawn was buffy, and separated a moderate quantity of serum. He was freely purged, and is much better in every respect. After this date, a small dose of rhubarb was given every morning: he gradually improved, and was discharged on the 4th of June, 1827.

The principal local affection in this patient, as well as in the two previous cases, was decided gastro-enteritis. They neither had shrivelled fingers, nor sunk eyes; and the true cholera stools were observed in only one of these patients: cerebral symptoms, with more or less of gastro-enteritis were predominant, with some fever, as well as occasional tendency to lowness and indistinct collapse. Many persons attacked in a similar manner at the same time, and not promptly treated, soon had all the more aggravated symptoms of cholera, which disease terminated fatally.

In the month of May, 1827, there were 149 cases of Cholera received into the General Hospital; of which, the greater number were attacked with that disease, within 10 days of this man's admission.

CASE CVII.—Wm. Morris, *Æt.* 21, a middle-sized man, of light complexion, recently arrived in India; was seized with vomiting, purging, and cramps in his legs, at noon, on the 22nd of August, 1830, which symptoms continued when he was seen at 2 o'clock P. M.; his pulse was then 102 and rather small; he was perspiring profusely, and the skin was cold, but his tongue was warm, clammy, and nearly clean; he was suffering from great thirst and anxiety, and felt very weak.

V. S. ad lb. j.

Capt. Calomel. ə i. in pil. ij. statim.

6 P. M.—He was faint, when only $\frac{3}{4}$ xii. of blood flowed, which was not buffy when it had cooled. Vomiting and purging have ceased; he has had no cramps for the last 20 minutes; anxiety remains, but his skin is warm, and he perspires less. The belly is hot, inelastic, and doughy.

R. Calomel.

Extract. Colocynth. Comp. āā ə ss.—misce fiant pil. iij. statim sumend.

Enema Purg. statim.

8 P. M.—The Enema has produced no stool. The cramps in his legs have returned; there is an increase of heat on the surface, and slight perspiration on the face.

The vein was again opened; and when 14 oz. of blood had flowed, he became faint, and the perspiration increased.

R. Olei Ricini $\frac{3}{4}$ iss.

11 P. M.—He is very weak; pulse 116 and hardly to be felt; the surface of the body is cool, and he is suffering from great anxiety; the tongue is warm. He has had one copious stool, of pale-yellow color.

To have \bar{z} iij. of Port Wine with as much hot sago.


R. Calomel. \bar{a} i. Opii gr. i.—misce fiant pil. iij. statim.

August 23rd.—He suffered from cramps nearly all night; pulse 108 and weak, the tongue is clean and rather dry: he vomited once since 11 o'clock, and had a scanty, fluid, brown stool, not three ounces in quantity.

R. Extract. Colocynth. Comp.

Calomel. $\bar{a}\bar{a}$ \bar{a} ss.—misce fiant pil. iij.—to be taken at 6 A. M.—and Castor Oil \bar{z} i. at 10 o'clock.

3 P. M.—He has had two free, fluid stools; the belly is hot, and he has some pain below the navel. A small cup of sago allowed.

 Apply four leeches to the belly.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. $\bar{a}\bar{a}$ gr. v. misce fiant pil. ii. statim sumend.

9 P. M.—Pulse 106; he is free from pain, but feels very weak; has had another copious fluid stool, nearly black. Give $1\frac{1}{2}$ oz. of Port Wine, with three oz. of thin and hot sago.

August 24th.—He slept, and is much better; had one stool of the same appearance as the last. Diet—tea, bread, and sago.

R. Pil. Hydrarg. gr. v.

Extract. Colocynth. Comp. \bar{a} ss.—misce fiant pil. ii. statim sumend.

The above medicine produced free stools, and he was convalescent the next day. A mild purgative was given daily till the 3rd of September, with the exception of only two days. His recovery was progressive until the 27th of August: he then for the first time ate some meat, and was feverish the next day; therefore a reduced diet was enjoined for several days longer.

The bad effects of premature use of animal food were very evident in this instance. In all cases of cholera, where febrile or inflammatory symptoms have existed, the same caution is requisite respecting the food used during convalescence, as in ordinary cases where patients are recovering from gastro-enteritis.

CASE CVIII.—George Mogg, *Æt.* 20. A middle-sized lad, of light complexion; recently arrived in Bengal: was received into the General Hospital at 7 P. M. on the 7th of June, 1827. He has been affected during the whole day with purging and severe cramps in the legs. Pulse feeble and frequent; the skin is cold; he is suffering much from pain all over the belly, and has head-ache.

V. S. ad $\frac{3}{4}$ xx. He was ordered to take immediately, Calomel $\frac{3}{4}$ i. in pills; and at the same time, the following draught:

R. Opii gr. ij.
Spirit. Ammoniae Aromat. 3 i.
Aquæ Menthæ Pip. $\frac{3}{4}$ ii. misce.

June 8th.—The blood drawn last evening is buffy, but very little serum has separated. He had several feculent stools during the night, of light-grey

colour, and he feels better : but still has head-ache, and there is pain in the belly, which is increased on pressure ; there is no morbid heat of skin : pulse frequent but more free : tongue clammy.

Apply 16 leeches to the belly.

R. Calomel. \mathfrak{a} i.

Opii gr. i. misce, fiant pil. ii. statim sumendæ.

Capt. Olei Ricini \mathfrak{z} ii. meridiæ.

Vesper.—He has had numerous, free, feculent stools, and feels better ; the tongue is white.

R. Calomel.

Extract. Colocynth. Comp. $\overline{\text{aa}}$ \mathfrak{a} ss.

Opii gr. i. misce fiant pil iij.—H. s. sumend.

June 9th.—He had one scanty mucous stool, at night. The pain in the belly continues, and his tongue is white.

Capt. Olei Ricini \mathfrak{z} i.

Apply 16 leeches to the belly.

He took Castor Oil daily on the 10th and 11th of June ; on the 13th, he was considered convalescent, and meat diet was allowed.

On the 19th of June, he was attacked with fever, and head-ache : and the bowels were not sufficiently free : pulse frequent but not very full. Diet reduced to tea and bread.

V. S. ad lb. j.

Apply ten leeches to the temples.

R. Pulv. Jalap. Comp. \mathfrak{z} i.

Vesper.—The blood drawn this morning is buffy ; his head is easier, but he is still feverish and thirsty ; he was purged five times in the course of the day.

R. Calomel. gr. v.

Extract. Colocynth. Comp. gr. xii.

Pulv. Antimon. gr. iij.—misce, fiant pil. iij. *h. s.*
sumend.

June 20th.—He vomited twice, and had eight stools during the night; he is now suffering from pains in his legs and thighs: pyrexia somewhat abated.

V. S. ad lb. j.

R. Extract. Colocynth. Comp. 3 ss.

Calomel. gr. v. in pil. ii. statim.

June 21st.—The blood is buffy; he was freely purged by the calomel and colocynth: no pyrexia remains. After this, he was purged as occasion required with Castor Oil, and on the 28th of June, discharged to join his Regiment. The evil consequence produced by a premature use of animal food were evident in the febrile and inflammatory condition, which took place on the 19th of June, requiring active depletion, and a return to low diet.

CASE CIX.—Joseph Bowdem, *Æt.* 19. A sailor of the French Ship *Victorine*: admitted into the General Hospital on the 25th of October, 1830, at half past 6 A. M. A slight made lad, of light complexion; sailed from France 22 months ago, first to Peru, and from thence he arrived in the river Hooghly 15 days ago; and has been working hard in landing the ship's cargo, which is of copper. He had a diarrhoea for a fortnight, which ceased for two days, and returned last night: and was then attended with

cramps in his limbs and vomiting. He is now in the act of vomiting the crude remains of food. His skin is covered with a cold sweat : pulse 120 and weak ; tongue warm, moist, and nearly clean : he is very pale, and has some oppression at the chest. The cramps are at present severe in his feet and legs.

V. S. ad lb. i.

R. Calomel. 3 i .

Opii gr. ii.—misce fiant pil. ii. statim sumend.

8 A. M.—He was weak and faint, when only 12 ounces of blood had flowed : it is black and not buffy, but a coagulum has formed, and the serum is bloody. He has had two brown, watery stools, about lb. iss. in quantity, but has not vomited ; he suffers from great anxiety and desire for drink. Pulse weaker.

R. Extract. Colocynth Comp. 3 ss .

Pil. Hydrarg. gr. v. misce fiant pil. iii.—to be given at 9 o'clock.

2 P. M.—Has had one scanty stool, like barley-water : vomited very often ; the cramps have ceased. He is cold and feeble ; the tongue is white, cold, and moist : pulse 122, and very weak. He is thirsty, and appears stupid.

R. Colomel. 3 i .—Pulv. Jalap. Comp. 3 i .

Pulv. Scammon. Comp. (Ph. Ed.) 3 ss . to be given now, mixed in treacle.

6 P. M.—Since last report, he has had one scanty watery stool, almost white ; he has vomited several times, and suffers from cramps in his legs and fingers.

Half past 12 at night. He has had one pale-grey, fluid stool, and vomited twice since 6 P. M. Pulse low, weak, and rapid: voice pectoral. He is torpid at times, and then lies in a restless state for a few minutes; the fingers are shrivelled, but there is not much perspiration except on the face; the extremities are cold and damp, and he is certainly worse. Ordered to take three ounces of Port Wine with sago.

Oct. 26th.—He slept after the sago and wine, and is now cheerful and warm; the tongue is warm, moist, and white: pulse stronger; he has had two stools, chiefly of a dark-grey color, but a part of the evacuations is nearly black. Diet—tea, and sago with wine.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. $\bar{a}\bar{a}$. gr. v. in two pills, to be taken at 7 A. M. and repeated at 10 o'clock.

4. P. M.—He is now free from cramps; the skin is cold: pulse low and weak; he has had two scanty, black, paste-like stools. Repeat two pills such as ordered this morning.

Half past 9 P. M.—Pulse feeble and frequent, hands cold, tongue white, cool, and moist: since 4 o'clock, he has had two free fluid stools, like gruel in consistence, but black.

R. Calomel. \bar{a} ss.

Extract. Hyoscyami gr. vi. in pills \bar{n} . s.

Oct. 27th.—He had one scanty stool like that last reported, but has not vomited, or had any

cramps ; his hands are cold, pulse 110, and he craves anxiously for drink. Diet of tea, bread, and sago, with 3 oz. of Port Wine.

R. Olei Ricini \bar{z} i. statim sumend.

R. Pil. Hydrarg.

Extract. Colocynth. Comp. $\bar{a}\bar{a}$ gr. v. in pills, at noon, and repeat at 3 P. M.

8 P. M.—He had two, dark, fluid stools, moderate in quantity, and thinks he is better. Let him have three ounces of Madeira Wine, with sago.

R. Calomel. \bar{a} ss. H. s.

Oct. 28th.—He slept, and had two scanty black stools during the night, and one more free evacuation this morning, of yellow color. He is better ; the hands are warm, pulse feeble, and the mouth is slightly sore from mercury.

Ordered to take Calomel. gr. v. at 7 A. M.

Olei Ricini,—Aque Cinnamomi $\bar{a}\bar{a}$ \bar{z} i. at noon.

Vesper.—Pulse improved ; his face is livid, and the eyes are very dull ; he has had two free loose stools, the skin is warm, and he feels better.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. $\bar{a}\bar{a}$ gr. v.

At 9 P. M.—He was anxious, low, and colder.

R. Pil. Hydrarg. gr. vi.

Opii gr. ss.—misce fiant pil. H. s. sumend.

Oct. 29th.—He slept, and is better ; has had one stool ; the mouth is sore ; his tongue is moist, and coated in the centre with white mucus. After this, a slight feverish condition remained for several days, and he took some purgative daily. On the

2nd of November, he had an eruption on the skin, resembling Urticaria. Mild purgatives were continued, and his food was very gradually increased.

Discharged well on the 10th of November.

A few years ago, when cholera was much more common in Calcutta and the vicinity, we had frequent opportunities of observing *Erythematous Eruptions* in patients who had recently suffered from cholera; the efflorescence appearing sometimes in those who were slowly recovering, in other instances in patients who were gradually sinking under slow febrile symptoms, combined with extreme venous congestion, similar to the low stage of some protracted remittent fevers. These eruptions occurred only in patients who had been for many days laboring under the asphyxial form of cholera, which was followed by obscure febrile symptoms; and the whole of these patients had taken large quantities of calomel, which in most cases had produced inflammation of the gums, but without free ptyalism. Some practitioners considered the cutaneous affection a species of mercurial erythema, while others ascribed it to the effects of calomel acting on a peculiar state of susceptibility of the cutaneous nerves, and a morbid action of the capillary circulation on the surface of the body, influenced by the stage of torpor and collapse which had preceded.

CASE CX.—Peter Matthews, *Æt.* 23, of middle size and dark complexion; recently landed from Europe: was taken ill on the morning of the 19th

of November, 1830, with purging and vomiting, which continued, when he was admitted into the General Hospital, at 5 P. M. He was then warm, and had a soft free pulse : no cramps.

V. S. ad lb. iss.

R. Calomel. \aa i. Opii gr. ss. statim sumend.

R. Calomel. \aa i. Extract. Colocynth. Comp. \aa ss.

Opii gr. ss.—to be taken in pills at 10 P. M.

November 20th.—The blood is not buffy, and the surface of the cruor is florid ; he vomited three times, and was purged often during the night ; the stools are tinged with bile. Pulse 112, and very weak ; he suffers from great anxiety and thirst ; his tongue is cool, white, and dry ; and the skin nearly cold. Diet—tea, and hot sago, with some brandy.

R. Calomel. \aa i.—Opii gr. i. in pills at 6 A. M.

2 P. M.—No stool or vomiting since the morning. Pulse low and weak ; he is cold, and sinking. Sago and brandy repeated.

R. Calomel. \aa i.

Extract. Colocynth. Comp.—Asafoetidæ \aa gr. v.

Olei Cinnamomi gtt. ii.—to be taken in two pills now.

5 P. M.—He has had five stools since last report, partly watery and black, partly feculent. Repeat the pills at 5 and again at 8 o'clock.

10 P. M.—He had ten free, dark, and feculent stools ; he is very faint and perspires.

R. Pil. Hydrarg. gr. vi.—Opii gr. i. in a pill now.

Nov. 21st.—Slept after 3 A. M., and is better ; had no stools. Pulse 98 and soft. Diet—tea, bread, and sago.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. āā gr. v. at 6 A. M.

Olei Ricini ʒ i. at noon.

Vesper.—He had four, free, fluid, dark stools, after the oil, and feels very weak ; his tongue is cold, but the extremities are warm : pulse free and natural.

R. Pil. Hydrarg. gr. vi.—Opii gr. i.

Nov. 22nd.—He has had more dark-grey fluid evacuations during the night, moderate in quantity : the surface of his body is warm and the pulse free ; his tongue continues cool, moist, and much loaded with grey mucus.

R. Extract. Colocynth. Comp.—Pil. Hydrarg. āā gr. v.

After this, a purgative was administered daily. He was feverish, and had a pain in his chest on the 26th, for which he was bled, and a purgative of jalap was ordered. And he was discharged well on the 29th of November.

CASE CXI.—Daniel Watson, Æt. 25; a sailor of the ship *Bridgewater*: was admitted into the General Hospital on the 2nd of June, 1830, at 6 P. M. A tall thin man, of light complexion, has been ill two days with vomiting and purging. Collapse is now commencing ; the pulse 96, feeble, and soft ; he is covered with a profuse perspiration, vomits water which he has recently drank, and suffers from a purging of a grey watery fluid. His eyes are blood-shot ; his belly is full, doughy, and inelastic ; the tongue is clean, moist, and of morbid red color. He has spasms at the pit of the stomach now, and had cramps in the soles of his feet three hours ago.

R. Calomel. ā i.

Extract. Colocynth. Comp. gr. vi.

Olei Menthæ Pip. gtt. ii. in two pills.

June 3rd.—He vomited twice, and was purged five times; the circulation is more free; his face is flushed; the tongue of morbid red color at its edges, coated with a little white fur in the centre, and rather dry; the stools are a conjee-like fluid, with some pale-grey powder at the bottom of the pan.

V. S. ad lb. i.

R. Calomel. ā i.

Extract. Colocynth. Comp. gr. vi.

Olei Menthæ Pip. gtt. ii. in pills at 6 A. M.

Olei Ricini ā i. at noon.

Vesper.—He has had four dark, fluid stools, and is better; the blood is slightly buffy, it has separated a very small quantity of serum.

R. Extract. Colocynth. Comp.—Pil. Hydrarg. āā gr. v. misce, fiant pil. ij. statim sumendæ.

June 4th.—He has had four copious dark stools during the night; and has now some pain in the region of the liver.

Apply eight leeches to the region of the liver.

R. Extract. Colocynth. Comp. ā ss.

Pil. Hydrarg. gr. v.

June 5th.—He has had seven stools, and is better.

R. Extract. Colocynth. Comp. ā ss.

Pil. Hydrarg. gr. v. at 6 A. M.

Olei Ricini ā i. at noon.

After this date a course of mild purgatives was followed, and he soon recovered good health.

CASE CXII.—George Patch, Æt. 24; H. M. 16th

Lancers : admitted into the General Hospital on the 18th of November, 1830, in the evening. A tall thin man, of light complexion, recently landed from Europe : ill one day, with purging and slight fever ; has voided no blood.

V. S. ad lb. iss.

R. Extract. Colocynth. Comp.
Pil. Hydrarg. āā 3 ss. statim.

Nov. 19th.—The blood taken last night is florid and not buffy ; he fainted when 8 oz. of blood had flowed ; he had six stools in the night, which have not been kept for inspection : he is now cool and weak : pulse soft and natural ; the belly is flat and hard ; and the abdominal muscles are tense.

R. Calomel. 3 ss.

Extract. Colocynth. Comp. gr. v. statim sumend.

Apply six leeches to the epigastrium.

1 P. M.—Since the morning visit he has had one copious stool, like barley-water ; his eyes are blood-shot, and the skin is hot ; but he has not vomited. Pulse 92 and free ; face florid ; tongue white, moist, and warm.

V. S. ad lb. i.

R. Calomel. 3 ss.

Extract. Colocynth. Comp. gr. v. to be taken now.

Vesper.—He fainted after the V. S. The blood is not buffy ; he has had two stools. The tongue is cold, moist, and white : pulse weak ; he suffers from anxiety, is pale and low, and has the cholera visage.

R. Calomel. ā i. —Extract. Colocynth. Comp. ā ss.

Opii gr. $\frac{1}{2}$, to be taken now, and repeated at 10 o'clock.

Nov. 20th.—Two stools have been voided during the night, and he feels better; the evacuations are watery and of dark color; the right eye is still blood-shot, and there is slight morbid heat of the skin.

R. Extract. Colocynth. Comp. ā ss.

Pil. Hydrarg. gr. v. at 7 A. M. and repeated at noon.

5 P. M.—He is better, and has had two stools, consisting of a dark fluid feculence.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. āā gr. v. now, and repeated at 10 o'clock.

Nov. 21st.—He is improving, and has had several scanty, fluid, dark stools: the surface of the body is warm; but his tongue is cool.

R. Extract. Colocynth. Comp. ā ss.

Pil. Hydrarg. gr. v. at 7 A. M.

Olei Ricini ā i. at noon.

Vesper.—Much better; three free stools.

Nov. 22nd.—One stool in the night, a whitish mucus, not in large quantity; he is warm, and seems better; there is more arterial congestion of the right eye. Pulse soft and free.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. āā gr. v. at 7 A. M.

Vesper.—Two stools have been voided, and he is better.

R. Pil. Rhei Comp. gr. vi.

Nov. 23rd.—He has had one free, fluid, dark stool; and is rather better.

Pil. Rhei Comp. gr. xii. at 7 A. M.

Olei Ricini $\frac{3}{4}$ ss. at noon.

Pil. Aloes Comp. gr. v. to be taken at bed-time.

Nov. 24th.—Better : ordered to take a dose of castor oil.

Vesper.—One stool ; he is gradually recovering. After this he took a purgative daily, and was discharged well on the 29th of November.

The morbid vascularity of one eye, in this case, was very remarkable : the left eye was slightly red on the 19th, while the right was injected with florid-red blood, to a most intense degree ; and continued in that state, long after the redness of the left eye had entirely subsided. I have seen children suffering from cholera, with very obscure inflammatory symptoms, in whom the cornea of one eye became dull, and an ulcerated groove formed at the lower segment of the cornea ; by which the humours were evacuated before death.

In the three next cases, blood-letting was tried with the view of affording relief to the patients, by taking off the load which oppressed the heart and arteries, and in the hope of thereby restoring a more free state of the circulation : and the practice proved eminently successful in the man Dempsey, (case 114,) in whom there was strong evidence that the circulation of the blood in the veins was obstructed to an extreme degree. However the stagnation of the circulation was accompanied by some morbid sensibility on pressing over the belly, and a febrile state

was observed to exist for several days after the subsidence of those symptoms which more especially indicate the existence of cholera. In case 115, the disease was too far advanced to admit of any relief from V. S. The pectoral voice, with troublesome cough, mucous expectoration, and feeble pulse, indicated the existence of pulmonary congestion in this patient, and death appears to have depended on the great accumulation, and stagnation of blood, in the lungs. The fatal event in this instance could not be ascribed entirely to obstruction of the circulation; for blood was procured from a vein much more readily than in the preceding case, which terminated favorably. Debility, from long-continued disease, could not be the principal cause of death, for this man exerted himself stoutly to procure water, and often drank it in large quantities, although prohibited from taking much drink.

In some seasons, and especially at the commencement of local epidemic visitations of cholera, when the disease appears in its more intense form, a peculiar disordered condition of the nervous system and of the circulation, exists in many cases, which, in its nature very much resembles Asphyxia; with which condition more or less of febrile and inflammatory symptoms are occasionally combined.

In such cases the patient soon becomes indifferent as to the result of his disease, intense thirst usually exists, and if spasms occur they are for the most part transient, and cause little pain: the pulse is generally

rapid and small, though occasionally it is observed to be slow and weak.

CASE CXIII.—Thomas Greenwood, *Æt.* 21, of middle size and light complexion, recently landed from Europe : was taken ill with purging, at noon on the 16th of November, 1830 ; and he went to the stool as often as six times every hour. Cramps in the extremities and vomiting commenced at 10 o'clock on the 17th, and as he appeared to be getting worse he was sent into the General Hospital at 11 A. M. His pulse was then 116 and weak ; the tongue was cool and moist ; the skin cool ; and voice feeble ; there was slight arterial or florid congestion of the eye-balls ; the eyes were only half open, but a bright light was not painful.

V. S. ad lb. i.

R. Calomel. \mathfrak{z} i.—*Opii* gr. i. in a pill.

R. Spirit. Ammoniae Aromat. 3 i.

Aquæ Tepidæ \mathfrak{z} iss. misce—to be drank after the pill.

Extremities to be rubbed with Spirit of Turpentine.

1 P. M.—The blood drawn two hours ago is not buffy, the cramps in his extremities have ceased, otherwise there is not much change ; he has been vomiting, and purged often : the evacuations are a clear watery fluid, with flakes of mucus.

R. Calomel. \mathfrak{z} i.

Extract. Colocynth. Comp. \mathfrak{z} ss.—to be taken now, in three pills ; and repeated in two hours. The Draught to be repeated with each dose of the pills as above ordered.

5 P. M.—The vomiting and purging continue ; he complains of thirst ; the pulse rather more distinct,

and the last stool is slightly colored with grey fæces.

Repeat the pills and draught.

7 P. M.—He has had one more stool, of the same appearance as the last ; pulse unchanged ; his voice is a little stronger ; he lies quiet and is cold ; the fingers are shrivelled, but his tongue is warm. A cup of hot sago with $1\frac{1}{2}$ ounces Port Wine to be given immediately.

R. Calomel. ʒ ss.

Extract. Colocynth. Comp.

Asafoetidæ āā gr. v.—misce, fiant pil. iii. To be taken at 7, and repeated at 9, and again at 11, P. M. and at 1 and 3 A. M. to-morrow morning.

R. Misturæ Camphoræ lb. i.

Sp. Lavand. Comp.—Tinct. Hyoscyami āā 3 iss.—misce, two ounces to be taken every two hours.

Nov. 18th.—He has had one scanty, slimy, pale-grey stool, and vomited often during the night. Pulse 102 and feeble ; the tongue is clean, warm, and moist ; the voice is very feeble, and he has occasional slight cramps in the legs. Let him have three ounces of Port Wine in some hot sago.

R. Calomel. ʒ ss.—Extract. Colocynth. Comp. gr. v.—misce, fiant pil. ii.—to be repeated every three hours, with some of the above mixture.

Apply a small blister to the epigastrium.

Vesper.—He has taken five doses of the pills, and has neither vomited, nor had any stools ; the cramps in the legs have ceased, and the shrivelled state of the fingers has disappeared.

Enema Purg. statim.

R. Extract. Colocynth. Comp. ʒ ss.

Pil. Hydrarg. gr. v.—in three pills at bed time.

Nov. 19th.—He has had two free, dark-green stools, at night: pulse soft and weak; he is cold, but his voice is stronger; the tongue is warm, moist, and slightly coated with white mucus. Diet, tea and three ounces of Port Wine, in a cup of hot sago, at 11 o'clock.

R. Calomel. ʒ ss.

Extract. Colocynth. Comp.

Asafœtidæ āā gr. v.—to be taken at 6 A. M., and repeated at noon, and at 3 P. M.

Vesper.—He has taken three doses of the pills; he vomits often, and is colder and very thirsty; the tongue is cold. These unfavorable appearances are ascribed to his having drank much water and tea, which he obtained contrary to orders. An attendant was directed to prevent his drinking any large quantity of tea or water in future.

R. Calomel. ʒ i. Extract. Colocynth. Comp. ʒ ss.

Opii gr. ss.—to be taken in three pills, at 6, and repeated at 10, o'clock.

Nov. 20th.—He has had no stool during the night, and there is very little change in any respect. The pulse is low, weak, and soft; his tongue is not quite cold, and he suffers from anxiety.

Habeat Enema Purg. statim.

R. Calomel. ʒ i.

Extract. Colocynth. Comp. ʒ ss.—in Pills at 7 A. M. and repeat at noon.

Give some hot sago with brandy, at 11 o'clock.

Vesper.—He has had three stools, the last was black, feculent, and fluid. He is warmer : the pulse is improved. He has not vomited : the gums are sore.

R. Extract. Colocynth. Comp.—Pil. Hydrarg. āā gr. v.
10 P. M.—He has had several free fluid stools ; and is weaker.

Habeat statim Enema. Purg.

R. Pil. Hydrarg. gr. vi.

Opii gr. i.—fiat pil. statim sumend.

Nov. 21st.—He has had several black fluid stools since last report ; he is now warm, and rather better ; but there appears some lurid congestion of the face ; pulse soft and low.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. āā gr. v. at 6 A. M.

Olei Ricini ʒ i. at noon.

Diet—tea, bread, and sago.

Vesper.—He has had four free, dark, feculent stools, but he has not vomited ; the pulse is more distinct, and he is much stronger and better.

After this a slight feverish disposition remained for a few days ; during which he took a mild purgative daily, and gradually improved. He was allowed a chicken and vegetables on the 25th, and was discharged on the 29th of November, 1830.

CASE CXIV.—John Dempsey, Æt. 20 ; a very muscular lad, of dark complexion, recently arrived in Bengal ; was attacked with vomiting and purging at 10 A. M. on the 26th of March, 1826 ; for which he was bled from the arm, and took two small pills ; but does not know their composition. His complaints

continuing to get worse, and being attended with other bad symptoms of cholera, he was sent to the General Hospital, where he arrived at 7 A. M. on the 27th of March ; his countenance was then sunk and ghastly, exhibiting *the true cholera visage*. Pulse 80, and weak ; he suffered from extreme thirst, and had pains in his legs ; there was also some pain on pressing over the belly ; the skin cool and lax ; his tongue cool, clammy, moist, and brownish.

V. S. ad $\frac{3}{4}$ xx.

R. Calomel. \mathfrak{g} i.

Extract. Colocynth. Comp. \mathfrak{ss} ., misce fiant pil. iii.—to be taken now, and repeated in $1\frac{1}{2}$ hour.

As the patient appeared fast approaching a state of torpor, from obstructed circulation, and the blood only came from the orifice in the vein by drops, 20 leeches were applied to the belly, and they filled very slowly ; at the same time, by pressing and rubbing the arm, the blood continued to drop from the vein for nearly two hours, and 20 ounces were collected in the cup.

At 10 A. M.—He is now suffering from great anxiety and thirst, and has a brown dry tongue ; the extremities are cold : pulse 110 and feeble ; he has not vomited, nor has he been purged since admission.

R. Olei Ricini \mathfrak{z} iss.

Aquæ Cinnamomi 3 iv.—misce ; to be taken now, and repeated at 1 o'clock P. M.

4 P. M.—Pulse more distinct, but still low and feeble ; the feet are cold ; his tongue is brown and

dry : he has now very little uneasiness on pressing over the belly ; and has neither vomited nor been purged since he came to the hospital.

Apply 30 leeches to the belly, and a large hot poultice after their removal.

R. Olei Crotonis Tiglii gtt. iv.

Olei Ricini—Olei Terebinth.

Magnesiae Sulphatis āā ʒ i.

Decoct. Oryzæ lb. i. misce—fiat Enema.

6 P. M.—He remains much in the same state as last reported ; but has had two copious, fluid, grey stools.

Capiat Olei Ricini ʒ iss. statim.

Directed to drink 3 oz. of thin and hot sago afterwards.

Apply sinapisms to the feet.

March 28th.—He appears better ; the anxiety and restlessness have ceased, the eyes are less sunk, and he has no pain if the belly be pressed ; the extremities are warm, and the pulse although somewhat revived, still remains low and soft. The tongue continues brown and dry, and he suffers from extreme thirst. In the course of the night he has had two copious, grey, feculent, fluid stools.

R. Olei Ricini ʒ iss.

Aquæ Cinnamomi ʒ ss.—misce ; to be taken at 6 A. M. and repeated at 11.

An Enema, such as ordered at 4 P. M. yesterday, is to be given at 6 A. M. and repeated at 11.

Vesper.—He has had two copious, loose, grey stools ; his skin is warm ; the tongue moist and

brown ; pulse 110 and soft. The cholera visage is no longer present.

Repeat the Castor Oil $\frac{3}{4}$ iss. ; also the Enema as at 11.

March 29th.—He is easy and cheerful : pulse 98 and soft ; the tongue is cleaner, but rather dry, and little coated with grey mucus ; he has had three copious stools of bright bilious-yellow color.

Olei Ricini $\frac{3}{4}$ i. at 6 A. M.

Enema as before, to be given at noon.

Tepid bath.

He remained feverish, for several days ; and purgatives were requisite to be repeated daily, until the tongue became clean. He recovered, and was discharged from hospital on the 17th of April. Although this man was apparently so much oppressed and low, the pain on pressure over the belly, on admission, and the dry brown tongue afterwards, shewed the existence of an inflammatory condition, for the cure of which V. S., aided by leeches, and persistence in the regular employment of depletion by purgatives, was the only proper treatment.

The next case is a good example of the difficult and unmanageable state of disease, which exists in those cases where cholera is preceded by a diarrhœa of several days' duration, whereby the watery part of the blood is drained away, and the patient is exhausted by protracted disease. This patient shewed some signs of re-action, after being ten hours in hospital ; and his actual condition then, if considered without reference to his long illness, and the continued diar-

rhœa, might have been deemed much more favorable than Dempsey's case above stated ; but it verified the observation I have often before had occasion to make, regarding the dangerous nature of those cases, which patients denominate common bilious attacks because they appear to be nothing more than diarrhœa ; more especially if they occur at a time when cholera is frequent in the vicinity.

CASE CXV.—Pierre Francis Poussadore, *Æt.* 37. A French sailor, arrived in the river 15 days ago, from Peru ; and has worked very hard in unlading the ship, which brought a cargo of copper. He has had diarrhœa for five days past, and was seized with vomiting and cramps in his legs, at noon on the 24th of October, and was brought to the General Hospital at 10 P. M. ; he was then in the act of vomiting, his pulse was feeble, the surface cold, tongue cool, and the skin of his hands shrivelled ; respiration was hurried, and his voice was weak and pectoral ; the thirst was extreme.

R. Calomel. \mathfrak{z} i.

Confect. Aromat. 3 i.—to be mixed with a little treacle, and given directly ; and let him take in two hours.

Olei Ricini,—Aquæ Cinnamomi $\bar{a}\bar{a}$ \mathfrak{z} i.

October 25th.—He has had no sleep, and no stool during the night ; he vomited about an hour after taking each dose of medicine, and at two other times in the night ; has now occasionally cramps in the fingers and toes. Pulse 92 and free ; face little flushed ; skin warm ; tongue rather dry and brown. He

suffers exceedingly from anxiety and restlessness ; the voice continues pectoral, and he is quite frantic and unmanageable, calling constantly for drink.

V. S. ad lb. i.

R. Calomel. ʒ i.

Confect. Aromat. 3 i. misce, to be taken at 7 A. M.

Olei Ricini 3 i. at 10 o'clock.

Let him take sago with 3 oz. of Port Wine at 11 A. M.

Extract. Colocynth. Comp. gr. xii.

Pil. Hydrarg. gr. vi. in three pills at noon.

At 2 P. M.—The cramps have ceased. The blood drawn in the morning is not buffy ; the circulation is lowered ; he has had two scanty, white stools, like flour and water ; he is cool, and says he feels himself better.

R. Calomel. ʒ ss.

Pulv. Jalap. Comp. 3 i. to be taken in treacle.

At 6 P. M.—Had no stool ; thought himself rather better, but he was colder.

At half-past 12 at night, he had one scanty stool, like that last reported ; there has been no return of cramp, but the pulse is very feeble, and voice pectoral ; his skin is nearly cold, and he appears anxious, low, and weak. He was now ordered to take sago and three ounces of Port Wine.

Oct. 26th.—Slept for three hours, and says he feels much better ; has no pain : tongue little furred and brown, but warm and moist.

R. Extract. Colocynth. Comp.

Calomel. āā gr. v. at 6 A. M., and repeat at 10 o'clock.

Olei Ricini $\frac{3}{4}$ i. at noon.

To have 3 oz. of Port Wine in hot sago.

At 4 P. M.—He had two black, paste-like stools, moderate in quantity; the tongue is brown and moist; he appears better, but is still cold.

R. Extract. Colocynth. Comp. $\frac{3}{4}$ ss.

Pil. Hydrarg. gr. v. in three pills now.

At half-past 9 P. M.—He has had a very scanty black stool, in quantity not $\frac{3}{4}$ ss. Pulse feeble and unsteady; tongue moist, brown, clammy, and cool; voice pectoral; hands shrivelled, and covered with a cold sweat. Ordered to take 3 oz. of Port Wine in hot sago.

R. Calomel. $\frac{3}{4}$ i. in pills.

Oct. 27th.—Had one scanty figured stool; not $\frac{3}{4}$ i. Pulse 110; he suffers from urgent thirst, and inclination to vomit; the surface of the body is cold. He has a troublesome cough, and copious mucous expectoration.

R. Pulv. Jalap. Comp. $\frac{3}{4}$ i.

Tinct. Sennæ $\frac{3}{4}$ ii.

Aquæ Menthæ Pip. $\frac{3}{4}$ i.—misce, to be taken at 7

A. M.

Noon.—He has vomited once since the morning, and had one scanty stool, like the last: he is cold, weak, and the extremities are perspiring; the tongue is cold, moist, and white.

Habeat Enema Purg. statim.

R. *Olei Ricini* $\frac{3}{4}$ i. cum *Tinct. Sennæ* $\frac{3}{4}$ ii.

3 P. M.—Nothing has been voided but the enema: the tongue is cold, and very brown in the centre,

but there is a narrow, red, clean streak at its edges ; increased anxiety : he is eagerly calling for water, and is at times delirious.

R. Calomel.—Pulv. Scammon. Comp. (Ph. Ed.) āā. ʒ i. to be taken in treacle.

8 P. M.—Had one scanty black mucous stool ; says he is better, but appears weaker ; the surface is cold, and pulse hardly perceptible.

R. Calomel. ʒ ss.—Extract. Colocynth. Comp. gr. v.

Opii gr. $\frac{1}{2}$ in pills.—1 $\frac{1}{2}$ oz. brandy in hot sago.

Oct. 28th, 5 A. M.—He has had one scanty stool, like tar ; the pulse is hardly perceptible : he is quite cold, and appears to be slowly sinking ; the cough and expectoration have been very troublesome in the night.

R. Calomel. ʒ i. in sugar.

R. Pulv. Scammon. Comp. ʒ ss.

Pulv. Jalap. Comp. ʒ i. Tinct. Sennæ ʒ ii.

Aquæ Menthæ ʒ iss. misce—to be drank after the Calomel.

At 8 A. M.—He is indifferent and torpid ; has voided no stool. Sago and wine were given ; he also had an injection of four pints of hot-water with the pump, which was repeated in an hour, and brought away some flocculi of white mucus.

Died—at half-past 9 o'clock.

Dissection, at 4 P. M.—Subject emaciated. Stomach and small intestines contracted, the former pale, the latter of dull lurid color : a quantity of water in the stomach ; much pale-grey mucus and yellow bile in the small intestines. Colon and rectum pale,

thin, and flaccid ; liver slightly enlarged, soft, and there are a few, small, pale-grey patches on its surface. There is much venous congestion of the lungs, and thick mucus in the air tubes : no other disease observed.

This man belonged to the French Ship *Victorine*, and the history of the cholera on board that vessel was most lamentable : she had been 22 months from France, having first made the voyage to Peru ; and brought a cargo of copper from thence to Calcutta, where she arrived in October. Her crew consisting of Frenchmen, worked hard for 15 days in landing the copper, and during the greater part of that time many of them suffered from diarrhœa, which was ascribed to drinking the Ganges water when heated at work : they had all been on shore once, or oftener. Several of the men without any evident cause became suddenly much more purged before mid-day, on the 24th of October, and gradually sunk into a low state, in which they derived no benefit from any of the remedies tried on board. Nine men were therefore landed : one of whom died as he was carried on shore, and another was found in a state of insensibility and dying when he was taken out of the palankeen at the Hospital. The rest were admitted in an advanced stage of collapse, and four more of them died of the disease. The loaded state of the mucous membrane of the bronchial tubes and air cells, was less distinctly marked in the others who died than in this case. The appearance

of re-action on the 25th of October induced me to use the lancet, and although the force of the circulation was lowered by the bleeding, I would willingly have repeated the V. S. in hopes of giving more freedom to the circulation, but the man refused to submit to it. The progress of the sinking after the blood was drawn, though not rapid, was regular and undeviating. The general character of the attack of cholera on board this man's ship, was most distinctly of the low kind, tending to fatal termination with little re-action: and we are not certain of deriving benefit from bleeding in those cases; on the contrary, we have evidence that in such forms of the disease, V. S. is very frequently injurious, and seems to shorten life.

In some seasons when cholera of the worst description is prevailing we occasionally meet with cases in which the disease commences with the most violent spasms, which after a short time are followed by profuse evacuations, and an intense degree of local congestion, with obscure inflammatory symptoms. The prompt use of the lancet has in general been attended with success in such modifications of disease, and it sometimes happens that the impending train of cholera symptoms is entirely arrested, as occurred in the following case.

CASE CXVI.—David Murray, *Æt.* 21, belonging to H. M. 26th Regiment of Foot, a stout and tall man, of light complexion, two years in India; came from Chinsurah on business on the 24th of Nov. 1830, and

walked all day in the sun, in Calcutta. He was seized at a quarter before 9 o'clock, P. M. with violent cramps in the extremities, and so much pain in the fingers and toes, that he roared aloud with agony. A serjeant of his regiment put him into a palankeen, and brought him directly to Hospital, where he arrived just after 9 P. M. suffering the utmost pain from the spasms; but his circulation was free and the surface warm: he had neither vomited nor been purged. He was immediately bled to lb. iss. and ordered

℞ Calomel. \mathfrak{z} i.

Extract. Colocynth. Comp. \mathfrak{z} ss. in pills.

The spasms decreased while the blood was flowing, and ceased altogether within 10 minutes after the arm was bound up. When the blood cooled, a moderate quantity of serum was separated; and the surface of the cruor was rather more florid than is usual with venous blood.

Nov. 25th.—He had one stool during the night, and feels well, but weak. Diet—tea, bread, and sago.

R. Extract. Colocynth. Comp. \mathfrak{z} ss.

Pil. Hydrarg. gr. v. in pills.

These pills purged him freely.

He was well enough to proceed in a boat to his regiment at Chinsurah, on the 26th of November.

At the time this man was attacked, we had many very bad cases of cholera in the General Hospital; and the men of his Regiment at Chinsurah, about 22 miles distant, were suffering from a severe descrip-

tion of Spasmodic Cholera. Therefore I am inclined to think that if this patient had not been promptly bled, he would have had vomiting, purging, and other bad symptoms in a short time.

At pages 5 and 6, and 40 and 41, I have endeavoured to point out the general character of cholera, attended with febrile and inflammatory symptoms, such as existed in the cases which have been already detailed ; in which, all the worst appearances are usually moderated by the use of the lancet ; and cured by a system of depletion, regulated according to the severity of the symptoms. In the foregoing cases, wherever the state of the blood which was drawn is merely reported *not buffy*, it is to be understood that there was about the usual quantity of serum separated, and that the surface of the cruor did not materially differ from the ordinary appearance of venous blood drawn from persons in health.

BLOOD-LETTING FREQUENTLY INJURIOUS IN CONGESTIVE CHOLERA.

IN almost all the cases, detailed in the preceding pages, blood-letting seems to have been decidedly useful ; in some by removing congestion, and in many others by reducing pyrexia, and obviating early local inflammation ; or by subduing the inflammatory condition which occurred at remote periods. Still, to advise the use of the lancet in all cases of cholera,

would often lead to disappointment ; as happened in some of the succeeding examples, in which the more important symptoms of the malady, consisted in coldness, watery evacuations, profuse sweating, extreme venous congestion, feeble pulse, depression of vital powers and deafness ; with tendency to sudden death, not preceded by much active disease. Though spasms sometimes existed, they were rarely attended with much pain. In such cases it is often difficult to procure blood from a vein ; but in many of those where blood can be made to flow, the system is lowered, and we find all the bad symptoms are aggravated by the V. S. The fact is that in this low form of the disease, which frequently prevails at the early stage of an epidemic attack ; we can often get as much blood from a vein, as does harm : and if it were ascertained that blood-letting would be always useful, and if the principal desideratum were simply to unload the vascular system, we might almost always procure blood from the larger arteries. Inexperienced persons are apt not to distinguish the low state, which sometimes attends the onset of the disease, from the collapse which supervenes on the latter stages of the febrile cholera ; and the discrimination is of much practical utility, for in the febrile cholera, patients often die because they are not bled early : while in the other, or the low form of the disease, they sometimes die quickly if they are bled even at the very commencement of the attack.

It is of the utmost importance to distinguish the low form of cholera, in the treatment of which stimulants and opium are necessary in the first instance; from that description of the disease which is marked by febrile and inflammatory symptoms, that require the prompt use of the lancet, and generally a modification of antiphlogistic treatment. I am desirous of pointing out in the strongest manner, the different effects of depletion by blood-letting in these two descriptions of the disease, respectively, and I cannot accomplish that object more completely than by referring to the very scientific account of an epidemic attack of cholera by *Mr. S. W. Lister*, of the Madras Medical Service. In his report relative to 39 cases of cholera which occurred from the 20th to the 31st of May, he says, "In 17 of these cases there was a greater or less degree of excitement; and 22 were of the low form of the disease. Eight of the above proved fatal, and they were all of the low form of the disease."

"Of the 22 cases of low cholera, seven only were bled on admission, of which, five died: of the other 15, in which bleeding was not had recourse to, three died; and two of these were considered perfectly hopeless when first seen*."

"Of the seven that were bled, five proved fatal; of the 13† not bled, only one died: now, as several

* "Every endeavor was used to extract blood from the arm of these two patients, but without success."

† "I here omit the two cases mentioned in the foregoing note."

of the cases which were not bled, and recovered, appeared, at first, as severe as those that were bled, and proved fatal, it is but fair to conclude that the blood-letting was injurious ; and, from what I observed of the sudden bad effects which followed the operation, I am disposed to be of this opinion."

" In several of the patients that recovered, the pulse was imperceptible at the wrist for a considerable time. In one man for nearly 36 hours, and in another for 24, the pulse was very seldom to be felt, and then with great difficulty. After the severe symptoms had abated, bitters combined with rhubarb were found useful ; with wine or brandy and nourishing light diet. The bowels were difficult to be moved for some days, and the stools continued watery and of a dirty leaden colour. Two patients had dysentery, and required bleeding after re-action had come on ; and one man had a severe attack of fever, which was relieved by a copious abstraction of blood ; but he died two days after of asthma, of which he had been ill two or three years."

" Of the 13 low cases *not bled*, seven were *quite* as severe, *at first*, as the 7 cases that were bled ; and even three or four of the other six cases appeared when admitted as bad as some of those that were bled, *previous to that operation* ; for the effect of the bleeding was *invariably* to diminish the pulse, and increase the low symptoms, *especially the cold sweating*. The pulse in the low cases was generally from 96 to 110, very feeble and small, and easily stopt by pressure

with the finger. Of the seven low cases bled, one patient lost 3 xxviij. of blood, two 3 xxvj, two 3 xx, and one 3 xij. In the two latter cases the pulse, &c. sunk so rapidly that it was evidently imprudent to take more blood. The external and internal stimuli were *quite* as extensively used, as in the cases where bleeding was not practised. The time of seeing the patients after the symptoms appeared was from one to three hours. Four patients, who were attacked in hospital, were seen immediately; and one of them (apparently the least affected) was instantly bled, the pulse being good; but he sunk very soon, and died in 36 hours. The other *three*, of which two were extremely severe cases, were not bled, and recovered. An artillery man in the garrison hospital, who was seen the moment of the attack, and bled to 3 xx, died in about 6 hours. From the above facts, I give my opinion against blood-letting in the decidedly low form of this dreadful disease."

"All the 17 patients who suffered from the excited form of the disease were bled, and *they recovered*. Internal stimulants and opiates were always necessary to a considerable extent, in this description of the disease, but much less than in the low cases."

The observations of Mr. *J. Lawrance*, of the Madras Medical Service, respecting blood-letting in the low form of cholera, are equally valuable, and of the same tenor; he says, "It happened, in some of the first cases, that the men applied for assistance early, and be-

fore extreme collapse had occurred, and when the heat of the body and the pulse had suffered only a slight diminution. In these instances, there was very little difficulty in getting blood ; but you may judge our mortification, when, during the act of bleeding, the pulse would sink never to rise again, cold perspirations would break out, the extremities becoming rapidly cold, and the patients never recovering from this state of collapse. Even in those cases brought to us when the pulse had ceased, and the extremities were cold, and we resorted to bleeding, as the means of relieving the congestion they apparently laboured under, although blood could be obtained, yet it was without the slightest relief."

The very great utility of blood-letting in febrile and excited cases of cholera, and the inefficacy of the lancet in the low form of that disease, have also been recognised and very ably pointed out by *Mr. W. Hitchcock* (now practising at Leicester), in an Essay which he published in the 5th volume of the Transactions of the Medical and Physical Society of Calcutta.

Wesometimes meet with cases of a mixed character, in which it is difficult to adopt a decided treatment. The condition of Holt, in the next case, seemed fully to justify the use of the lancet ; in fact the morbid sensibility of the belly on pressure, with warmth of surface, and spasms ; at so early a period after the commencement of symptoms of the disease, seemed to demand the loss of blood : still, the first effects of

the depletion were unfavourable, and its ultimate result destructive. A large proportion of the cholera cases, which commenced within a day or two of this man's attack, proved fatal, by the rapid accession of coldness and collapse.

CASE CXVII.—W. Holt, H. C. Artillery, *Æt.* 20 ; of middle size and light complexion, recently arrived from Europe, and landed from the Ship *Thames* five days ago. Admitted into General Hospital, at half-past 2 o'clock P. M. on the 20th of May, 1826 : affected with vomiting, and purging of a pale and almost clear watery fluid. He vomited the instant he was taken from the doolie and placed on a bed ; and was then suffering from cramps in his legs : the skin was warm ; pulse 122, soft, and low ; his tongue was warm, moist, and white : the belly rather full and doughy. Pressure over the abdomen was painful, and he complained of ardent thirst. His illness commenced at 10 A. M. with a simultaneous vomiting and purging, for which he took medicine in the Fort.

V. S. ad $\frac{3}{4}$ xx. statim.

Twelve ounces of blood flowed in a stream ; the rest was obtained by pressing the arm. The vomiting recurred while the blood was flowing ; at the same time, the pulse sunk, and became imperceptible, and could never be distinctly felt afterwards.

A large blister was applied to the belly.

Calomel \mathfrak{z} i. was put on the tongue, in powder, and washed down with the following mixture :

Tinct. Opii \mathfrak{z} i.—Tinct. Sennæ \mathfrak{z} iv.

An enema was ordered, composed of

Oleum Terebinth.—Oleum Ricini

Magnesiæ Sulphatis āā ʒ ii.

Ol. Croton. gtt. iv.—Aquæ Tepidæ ʒ x:

4 P. M.—He has vomited several times, and has been purged once, the evacuation from the intestines is a watery fluid as before; he lies in a state of extreme anxiety: the surface of the body is livid and cold; the fingers are shrivelled; the eyes are sunk, and the pulse is not to be felt.

After this, no medicine remained many minutes on the stomach. Calomel combined either with purgatives, or with opium, was quickly rejected. The enema was repeated, and we attempted to alleviate the torpor of the venous circulation in the extremities, by keeping people constantly employed, with warmed hands, to champoo and rub the whole surface of the body. Brandy with hot-water, and hot sago, were repeatedly given, and every means tried to restore the circulation, but without effect. The fulness of the belly, which existed on his admission, was decreased; and on pressure the gurgling of fluid in the intestines was very evident. His countenance remained ghastly and sunk, and at eight o'clock his expressions were incoherent. He died at half-past 9. It was exceedingly distressing to see a patient sink so rapidly, and the pulse to fail so immediately on the abstraction of blood, as to leave no doubt that the treatment was injurious. I have seen several cases of a similar description, where the

abstraction of blood decidedly did harm, in the early stage of congestive cholera, in which coldness and collapse came on rapidly, unattended by pyrexia or symptoms of local inflammation; but in this instance, the warmth of the surface, of the body and extremities with morbid sensibility of the belly when pressed, and the existing spasms, seemed to afford reasonable hope that V. S. would be beneficial.

CASE CXVIII.—Thos. Marren, Æt. 50. A sailor of the Ship *Bridgewater*: was admitted into the General Hospital, on the 3rd of June, 1830, at 10 A. M. A large and muscular man, of dark complexion; he was taken ill at 8 o'clock last night, with cramps in his legs and belly. Vomiting and purging began at 1 o'clock this morning; and he says, he was bled to a basinful (probably a pint) at 4 A. M.; but he has not taken any medicine. On admission, at 10 o'clock, the fingers were shrivelled, the surface of the body was cold; his tongue was cold, clammy, and pale; the eyes were sunk: pulse 162 and very weak; he was exceedingly restless, and suffering from cramps in his legs and hands; he vomited and was purged, the evacuations were a watery fluid; and he called aloud for drink. The belly was flat, doughy, and inelastic.

V. S. ad $\frac{3}{4}$ xv.

R. Calomel. \mathfrak{g} i.

Extract. Colocynth. Comp. gr. vi.

Olei Menthæ Pip. gtt. ii.—to be given in pills now, and repeated every hour, for four doses.

R. Spirit. Ammoniae Aromat. 3 i.

Aquæ Tepidæ 3 ii.—misce, to be drank after each dose of the pills.

2 P. M.—The blood drawn at 10 o'clock is not buffy; he has had one scanty stool resembling barley-water, but has not vomited since the bleeding. The pulse is not now perceptible; otherwise he remains much in the same state as last reported; the cramps are at times violent; and the extremities cold.

A hot-water blister was applied to the scrobiculus cordis, and another to the centre of the spine.

No favourable symptom occurred, and he died at 5 P. M.

Dissection—fourteen hours after death, and 21 hours after the commencement of the disease. Venous congestion of the brain was observed, and some milky serum was effused between the tunica arachnoidea and pia mater, at the upper part of the hemispheres; and there were 3iiss. of serum in each lateral ventricle. Nearly an ounce of serum was found beneath the tentorium, some of which extended down into the spinal canal. There was an opaque patch on the anterior part of the heart, evidently not the result of recent disease. The liver was rather large, soft, and unctuous, its surface slightly mottled. Two very white patches on the surface of the liver, near the ligamentum suspensorium, which are caused by effusion of coagulable lymph beneath the peritoneal coat; these are each the size of half a rupee, and evidently not the result of recent disease.

The gall-bladder was distended with bile of a pale dirty green color. The cystic duct was not one-fifth of the usual size, and it arose from nearly half way up the side of the gall-bladder. The omentum and small intestines were very vascular; the coats of the latter, as well as of the stomach were thickened, the interior of both the stomach and small intestines was lined with a thin, pale-grey fluid, of the consistence of thin mucilage.

CASE CXIX. Thomas Holmes, Æt. 45. A sailor of the Ship *Bridgewater*; was admitted into the General Hospital at noon on the 8th of June, 1830. A stout man, of light complexion: he has been drinking spirits intemperately, and was seized with vomiting and purging, and cramps in the legs, at 4 A. M. These symptoms continue, attended with a flushed face, and pain in the stomach and right side. Pulse frequent and full; the body is warm; the feet are cold; but his tongue is white, moist, clammy, and warm.

V. S. ad lb. iss.

R. Calomel. ℥ i.

Extract. Colocynth. Comp. ℥ ss.

Olei Cinnamomi gtt. iv. in three pills—to be taken now.

R. Sp. Ammonizæ Aromat. ʒ i.

Aquæ Tepidæ ʒ i. misce.—to be drank after the pills.

Half past 1 P. M.—The bleeding made him faint, the blood is buffy, and much cupped; the pain is alleviated, but he is cold, and appears to be sinking. Hot brandy and water was ordered to be given.

Pills repeated.

Half-past 2 P. M.—He vomited once ; but has had no stool.

Repeat the pills, with addition of one drop of Croton Oil. Also let him have a purgative Enema with Oleum Terebinthinæ ʒ ss. and repeat it in half an hour.

Half-past 3 P. M.—After the second enema, he had two copious, dark-green, fluid stools ; he is now warm and more tranquil, but suffers from cramps in the feet, and has not vomited during the last hour.

R. Olei Ricini ʒ i.

Olei Menthæ Pip. gtt. iv.

Sacchari ʒ i.

Aquæ Fontis ʒ iv. misce—to be taken now, and repeated at half-past four o'clock.

Turpentine Liniment to be rubbed to the extremities.

6 P. M.—He remained easier for above an hour ; and in the last half hour has had several black watery stools, altogether three pints ; he suffers from great anxiety, and incessantly calls for drink ; the tongue is cold and clammy. Pulse 126 and weak ; cramps are very urgent ; the fingers are shrivelled.

R. Calomel. ʒ i.

Extract. Colocynth. Comp. gr. vi.

Opii gr. $\frac{1}{2}$ —to be taken in two pills now ; and repeated at 7 o'clock.

One ounce of brandy mixed with four ounces of sago to be drank after the pills.

10 P. M.—Has been gradually sinking, and becoming more cold. Pulse now imperceptible ; he had one stool, the same sort as above ; has not vomited ; says his “ head is light.”

Repeat the pills as at 6 P. M.

Also let him have Spt. Ammoniae Aromat. 3 iss. in Aquæ Tepidæ 3 ii.—to be drank after the pills.

Died half past 11 P. M. on the 8th of June, 1830.

Dissection—fourteen hours after death. Subject stout; the eyes are much sunk, and the face is very white.

Some old adhesions were observed in the right side of the chest; both lungs were sound, their posterior part very dark-colored from gravitation of blood. The liver was large, soft, and exceedingly vascular, its surface was covered with star-like patches of vascularity, like the nose and cheeks of a bon-vivant. Incisions into the liver bled freely. The gall-bladder was small; its coats were thickened; and its base was adherent to the colon. The stomach was thickened and pale; its interior was corrugated, and covered with thick whitish mucus. The omentum and small intestines were very vascular; the coats of the intestines were somewhat thickened, and their contents were deeply tinged with dark orange-colored bile. The veins of the brain were turgid; there was much effusion of serum between the tunica arachnoidea and the pia mater—in some places this effusion was very milky; 3 vii. of clear serum in the right lateral ventricle, and above an ounce of clear serum in the left, and 3 iii. of a similar fluid beneath the tentorium; the substance of the brain was firm and tough.

CASE CXX.—James McCabe, Æt. 23. A stout man, of dark complexion; four years in India: re-

cently arrived from Madras ; having volunteered from H. M. 89th to the 3rd foot ; and therefore it may be presumed, he has been living in an irregular and dissipated manner for the greater part of several weeks past. Was admitted into the General Hospital on the evening of the 11th of November, 1830, having been ill five days with head-ache, and griping in the belly. He was bled to lb. iss. that night, and the blood was not buffy. In the next three days, he took two doses of compound extract of colocynth with blue pill ; and one dose of castor oil, which purged him freely. He was discharged well on the 15th of November.

This man was seized on the next day with vomiting, after eating his dinner at three o'clock, and was sent to the hospital at 6 o'clock P. M. on the 16th of November. He was then vomiting with great violence, and constantly passing by stool a conjee-like fluid, with white flocculi ; the surface of his body was cold, the pulse feeble, and he had slight cramps in the legs.

V. S. ad lb. i.

R. Calomel. \mathfrak{z} i.

Opii gr. i. to be taken immediately in a pill.

Ordered the extremities to be rubbed with Ol. Terebinth.

Eight o'clock P. M.—Only 8 oz. of blood could be got from the veins. No change for the better ; he has just now vomited, and had a stool which is like conjee.

R. Calomel. \mathfrak{z} i. in pills, to be washed down with this draught.

R. Spirit. Ammoniae Aromat.—Tincturæ Opii āā \mathfrak{z} i.
 Aquæ Cinnamomi \mathfrak{z} i. misce—the draught and pills to be repeated at 10, and again at 12 o'clock.

He gradually sunk into a state of insensibility, and died at 1 A. M. on the 17th of November, 1830.

Dissection,—fourteen hours after death. There was much engorgement of blood at the back part and root of the lungs. The liver appeared healthy, and rather smaller than common ; its edge thin, and texture of natural softness. The gall-bladder was full of green bile ; its exterior was covered with an adventitious membrane, apparently not of recent formation. The stomach and small intestines were enormously distended with flatus, and contained much whey-like fluid, and thick white mucus. There was no bile in the duodenum. The omentum, mesentery, and mesocolon, were highly vascular ; the small intestines were also in the same state, and the mesenteric glands were enlarged.

CASE CXXI.—Torrens, *Æt.* 29, a muscular man, of middle size and light complexion ; a sailor of the Ship *Mount Vernon* ; arrived from sea about the middle of October, 1831 ; and after remaining a week on board, he landed in the afternoon of the 21st, and drank some spirits in the bazar, but says he was not drunk. Late in the evening he was wet by a shower of rain ; and failing to get on board, he slept in a shed near the bank of the river. About

midnight he was seized with cramps, followed by vomiting and purging ; at 9 o'clock A. M., he succeeded in getting on board, and the Captain gave him 60 drops of laudanum in a glass of brandy ; after which, the vomiting and purging ceased, but he remained so much distressed by anxiety and feeling of debility, that it was considered best to send him to the hospital, where he arrived at 1 P. M. on the 22nd of October. The stage of collapse was then commencing : his face was pale ; he was covered with a profuse perspiration, and suffering from much anxiety ; the tongue white and clammy ; pulse tolerably free ; the belly was tense and tumid. A vein was opened, and when $\frac{3}{4}$ x. of blood had flowed, the pulse sunk so rapidly that it was not deemed safe to take more. Twenty grains of calomel with two grains of opium were given. Within an hour the pulse rose, and the orifice of the vein being opened, six ounces more blood were allowed to flow, by which the pulse was rapidly and permanently sunk. A large sinapism was now applied over his belly, and spirit of turpentine diligently rubbed to the extremities. The 10 ounces of blood first drawn coagulated ; and a small quantity of bloody serum separated, which on exposure to heat of 160° formed a firm coagulum. The blood last drawn coagulated, but no serum was separated : the cruor of the blood in both cups was remarkably dark-colored.

Calomel, with colocynth, asafoetida, and oil of cinnamon were repeatedly administered ; stimulants

were used : and he took a dose of spirit of turpentine and castor oil, each one ounce ; but no medicine had any effect : he gradually sunk into a state of torpor, the pulse at the wrist ceased, and the fingers became shrivelled. He died at 3 A. M. on the 23rd of October, 14 hours after admission into the Hospital ; during which period he had four scanty, fluid stools, of a brown color, and vomited several times.

Dissection—twelve hours after death. The muscles were rigid ; the lungs were gorged with blood, especially at their depending parts ; and there was a small quantity of mucus in the trachea and bronchial tubes. There were a few small ecchymosed specks on the right side of the heart. Some morbid vascularity of the omentum and mesentery was observed, and the glands of the mesentery and mesocolon were enlarged. The stomach was pale externally, its coats were much thickened, its mucus membrane was corrugated, and covered with a large quantity of thick tenacious mucus ; when that was scraped off, several vascular patches of deep-red color were seen. The pills, in a softened state, and some turpentine with castor oil, which had been taken several hours before death, remained in the stomach.

The coats of the small intestines were much thickened ; at no part could they be deemed paler than natural, but several portions for the extent of a foot in length, had the minute vessels injected with red blood, in a very extreme degree. The small intestines contained much watery fluid ; in some parts this

was tinged with yellowish bile, in other parts, of a pale-grey color, mixed with many large masses of white mucus. The coats of the colon presented no morbid appearance, and this intestine contained much fluid of a dark-brown color. The liver was large, and its texture soft; the color was natural, with the exception of a slight mottled appearance, from a few small, pale spots on the surface of the left lobe. The gall-bladder was adherent to the adjacent parts; it was much enlarged, round, and distended with very fluid bile, of a natural color. There was a great degree of venous congestion of blood in the brain, and the large veins along the spine were gorged with black-colored blood. Some serous effusion was observed between the tunica arachnoidea and pia mater. There were 3iiss. of serum in each lateral ventricle; and 3iss. below the tentorium.

ARTERIOTOMY IN CHOLERA.

When a state of collapse with an extreme degree of obstruction of the circulation of the blood takes place, in plethoric subjects who are labouring under cholera, and we are unable to obtain a considerable quantity of blood from the veins; we are apt to suppose that the treatment fails to afford relief because we do not get enough blood: and it is difficult to come to a different conclusion, when we contemplate a robust and plethoric man suffering from the

congestive form of cholera, with the face, neck, and chest purple or livid; while the patient is exerting great muscular exertion in respiration. But when we open a considerable artery in such subjects, and take blood as freely as we could wish, and still find our patient not relieved; we are obliged to change our opinion. Some doubt may be entertained with respect to the propriety of taking blood from an artery in those cases, when we observe that the congestion and obstruction, appear to be in the veins: for in taking away arterial blood, we deprive the patient of that which his system cannot again supply, so long as the decarbonising functions of the lungs continue to be impeded, either in consequence of the disorder of the nervous system, or of a morbid coating of viscid mucus in the bronchial tubes and air-cells. We are so apt to speak of the calorific and decarbonising functions of the system, as allied to each other, that perhaps I may now be ascribing too much to the latter; when I would speak of the failure of both, as among the most prominent phenomena of declining vitality, in cases of Cholera attended with collapse.

CASE CXXII.—William Griffiths, a Gunner in the Artillery, aged 28; a stout, muscular man, four years in India, invalided on account of the loss of an arm; and recently sent from his Battalion to Fort William, on his way to Europe. Was taken ill with Cholera soon after midnight: the first symptoms were vomiting and purging, followed by dreadful

thirst, cramps in the legs, coldness of the whole surface, and extreme anxiety. He did not report his illness till day-light, and was then sent to the General Hospital, on the 26th of December, 1829. On admission, he was quite cold, the fingers were shrivelled, pulse imperceptible; the tongue was cold, moist, clammy, and nearly clean; the face was livid; the eyes were sunk in the orbits; and there was much venous congestion of the eyes, giving the scleroticæ and conjunctivæ a lurid appearance. Respiration was laborious, and the chest heaving, and there was an expression of great agony in the countenance; the voice was pectoral, but not very feeble. He was tossing from side to side in bed, and constantly calling for water. Cramps in the legs and arm were very severe.

Twenty grains of calomel and two grains of opium were given in a pill, but immediately rejected. A free incision was made into a vein in the arm, but not a tea-spoonful of blood could be obtained; the jugular vein was then opened, and only a trivial oozing of thick black blood, like treacle, issued slowly from thence. These attempts to procure blood from the veins having failed, and the symptoms continuing unabated, he was ordered to take 20 grains of calomel mixed with sugar, and washed down with the following draught:

R. Aquæ Cinnamomi ʒ iss.—Spirit. Ammoniac Aromat.
Tinct. Opii aa. ʒ i. misce.

These medicines were vomited up, with most violent

efforts, the instant after being swallowed. The extremities and body were rubbed with spirit of turpentine, by four men ; and at the same time the radial artery was freely opened at the wrist, by an oblique incision with a lancet ; the integuments being first divided down to that vessel, with a small scalpel. Blood flowed from the artery, at first in a languid stream, and of a dark-purple color, trickling down the wrist. When about 13 oz. had flowed, the blood came in a jet with arterial impulse, its color was rather a brighter red ; yet not like the arterial blood of a healthy person. At this time there was no evident relief of any symptom, and the man said he was weaker. The rubbing of the extremities was continued briskly, and a finger was applied to arrest the flow of blood. Some brandy with hot-water was given, which he vomited immediately ; and after this, he refused to take any thing but cold water : in fact he was totally unmanageable, and deaf to the arguments or entreaty of his friends. After the delay of about three minutes, the blood was allowed again to flow, and it came freely with a smart jet ; by which, and the restlessness of the patient, above $4\frac{1}{2}$ oz. were spilt on the bed and floor ; when lb. j. more had been received in the basin, the stream became smaller and more feeble, which was ascribed to the gradual formation of a coagulum at the orifice ; but the man seemed weaker and more exhausted. Therefore, the finger was again applied to the artery for five minutes. The patient was now evidently more

purple in the face, his breathing was more laborious, and he appeared more feeble in tossing about in bed ; the voice remained pectoral, but much weaker than on his arrival at the hospital about one hour and a quarter ago. The principal distress appeared at this time to depend on the stagnation of venous blood, and imperfect action of the lungs. The artery was again let loose ; but the blood now flowed very feebly, and only three ounces more could be procured.

During the above treatment, this patient continued sinking ; but I could not assert, that his dissolution took place more quickly than I have frequently seen in patients admitted in the same stage of disease, who had the calomel and opium treatment, with stimulants, and who were not bled. Although the blood sprung from the arm in a smart jet before a pound had flowed, and we might hence infer that the heart's action was more free, I was never able to distinguish any pulsation in the radial artery ; nor did the patient appear in any degree relieved. The blood received in the three cups as above stated, was examined in half an hour ; it had coagulated rather more firmly than we find the cruor of venous blood of a healthy person ; its color not materially differing in the several cups, was of rather brighter tint than the cruor of healthy venous blood. When carefully weighed, the quantity taken in the cups was found to be lb. ij. 1 oz. making together with what had been spilt in consequence

of the arterial jet, and the agitation of the patient, 2 lbs. $5\frac{1}{2}$ oz. No serum was separated in any of the cups of blood. The patient gradually became weaker, less agitated, and indifferent to surrounding objects. He occasionally called out that he had cramps in the feet or belly, but no sign of re-action appeared, and he died one hour and 37 minutes after the blood had ceased to flow from the artery.

CASE CXXIII.—Pierre Louis, a middle-sized lad, of light complexion, *Æt.* 18. A French sailor, of the Ship *L'Indus*; was brought to Hospital at 5 P. M. on the 21st of March, 1828, having suffered from slight fever for six days. He began to vomit yesterday morning, and he has been 20 times at stool; the evacuations are in appearance like water. Vomiting ceased during the night, but returned this morning, since which he has vomited three or four times, but had no stool this day. He has now severe headache and pain at the scrobiculus cordis; pulse 108 and feeble; the respiration is panting and anxious; the pupils are dilated, but there is no venous congestion of the eye-balls; the surface of the body is cool; the tongue is cold, moist, and white. He is suffering from dreadful thirst. He has taken no medicine, and for two days past has not tasted food.

Apply 12 leeches to the Epigastrium, and six to the temples.

Calomel. 3 ss. was given in pills: and a draught of Tinct. Rhei 3 iv.—in Aquæ Cinnamomi 3 i.

A blister was applied to the belly, and at 6 o'clock he was ordered to take

Oleum Ricini—Oleum Terebinth. \overline{aa} 3 i.

Oleum Croton. minim. ii. in a draught.

At 9 P. M.—The face is livid, tongue cold, pulse at the wrist imperceptible, and the fingers are shrivelled; the hands are quite purple from stagnation of venous blood: and he calls incessantly for drink. He has been once on the stool, and voided from the intestine a small quantity of clear water, which has a peculiar cadaverous odor.

Repeat 12 leeches to the chest; and six to the temples.

R. Calomel. ʒ i.—Extract. Colocynth. Comp. ʒ ss.

Opii gr. ss.—misce fiant pil. iii. statim sumend.; also

let him have

Spirit. Ammoniae Aromat. 3 i.

Aquæ Font. 3 i. in a draught, after the pills.

At 10 P. M.—No vomiting, nor stool; the cramps are very severe; the thirst is unabated: pulse just perceptible and very rapid. His face continues purple, and respiration laborious; the chest heaving, with intense anxiety. Seven of the leeches have filled tolerably, the rest have been pulled off by the constant restlessness and jactitation of the patient. A vein was now very freely opened, but no blood flowed. As a last attempt to mitigate the extreme agony of the patient, I made an incision down to the radial artery at the wrist; and opened that vessel by an oblique section with a lancet. The blood which first flowed

was warm, and of a purple color ; it trickled down the arm for a few minutes, and afterwards started forth with a jet, and by the time that seven ounces had flowed, the arterial impulse was strong and steady : the livid color of the face had decreased, and there was less laborious heaving of the chest ; but the coldness of surface remained, and there was no perceptible difference in the pulse at the wrist. Desiring to afford time to ascertain if this limited flow of blood from the artery would be followed by acknowledged relief of respiration, and more free action of the heart and arteries : pressure was made on the orifice for five minutes, as soon as seven ounces had flowed. The patient not expressing any relief at this time, the orifice was allowed again to bleed, until seven ounces more had flowed, and after a similar pause of five minutes, the bleeding was carried to 21 ounces. besides about five ounces that were spilt on the bed and floor. The color of the blood last drawn was more florid than the first, but the patient did not appear to derive any benefit from the operation. He was weaker, and as it was estimated, that he had lost from the artery, and by leeches, above 50 ounces of blood since admission ; the artery was closed with slight pressure and a bandage. The patient swallowed 20 grains of calomel in a small quantity of beer, which was the only thing he would now take ; and the calomel was repeated at 11 o'clock, but not the slightest amendment took place, and he died at

$\frac{1}{4}$ past 12 at night. Mr. Barrett, Apothecary to the General Hospital, assisted me in the care of this case, and attended during the arteriotomy of the previous patient.



THE LOW FORM OF CHOLERA WITH
TENDENCY TO COLLAPSE.

Having in the foregoing pages pointed out that description of Cholera, for the treatment of which blood-letting may be generally employed at an early stage, and is then to be considered one of the most efficient remedies; having also given examples of certain modifications of that disease in which V. S. is often followed by injurious consequences, and sometimes proves destructive to the patient; it remains for me to proceed with the detail of the treatment of those cases in which most of the symptoms enumerated at page 97 occur, and in which such an extreme degree of coldness, oppression of vital power, and feebleness of the circulation take place, that general blood-letting is inadmissible. It is at the very onset of such modifications of the disease as are to be now adduced, that one or two large doses of opium or laudanum will often arrest the most dangerous symptoms, and restore the patient at once, from a condition which if left to nature, unaided by medical treatment, is almost invariably followed by the stage of collapse, in the course of a few hours.

In the succeeding cases, we have examples of a description of Cholera, in which the treatment that is most useful in the febrile and inflammatory forms of the disease, is not generally available. When the early stage of Cholera is marked by symptoms of collapse, V. S. is a dangerous experiment, which has often done harm in such cases ; but we frequently succeed in saving our patients by a careful and judicious treatment, by attending in the first instance to resuscitate the vital power, and afterwards taking care to subdue any local inflammation that may supervene. Febrile and inflammatory symptoms are not usually observed at the commencement of the disease, in persons suffering from this low description of Cholera ; and early failure of vital energy, seems in many cases connected with profuse and frequent watery evacuations ; the course of the disease tending rapidly to that state of torpor, in which remedies produce no effect.

It is when this description of Cholera occurs in the cold season, that we most frequently see the short and imperfect respiration, with feeble pectoral voice, and other symptoms indicating that state of torpor in the functions of the lungs, which dissection proves to be sometimes connected with a thin coat of tenacious mucus on the surface of the bronchial tubes and air cells. Among the expedients that might reasonably be tried for the purpose of stimulating the patient and exciting re-action in this form of disease, the inspiration of medicated vapors, and of nitrous

oxide gas, may be mentioned. In fact, the effects of remedies inhaled into the lungs have been almost entirely neglected: they may be useful in the treatment of this formidable modification of disease.

In many of the following cases, there was coldness, sinking of vital power, and failure of the pulse; coeval with the earliest symptoms of the disease; and under circumstances in which blood-letting was not considered justifiable. We find that these patients derived immediate and very great benefit from one, or two large doses of opium or laudanum, and small quantities of stimulants: the most distressing sensations of debility, and the lowness of the pulse, were often relieved by hot sago with wine or brandy. In many such instances, an opiate given early, and a dose of castor oil a few hours afterwards, with tranquillity and a cup of gruel with a little wine, seem all the treatment that is requisite. In some of these patients, in whom the low form of the disease was predominant, a slight and transient feverish affection was followed by collapse of the most formidable description; in which it was necessary to give a small quantity of opium and stimulants, before it was safe to employ purgatives and apply leeches. Those who were treated early, in the low form of the disease, had in general more prompt recoveries, and were less liable to relapses, or to febrile affections on returning to their usual food, than those who had febrile and inflammatory symptoms from the commencement.

CASE CXXIV.—Samuel Cox, *Æt.* 22, arrived from Europe on the 10th of November, 1830, and was admitted into the General Hospital on the 22nd, with very severe dysentery, attended by much pyrexia, and some enlargement of the liver. This man was twice freely bled from the arm; and had leeches applied to the belly daily, till the 25th; and the other remedies usually ordered in dysentery were employed. On the morning of the 26th, some slight appearances of Cholera were manifest; such as anxiety, languor, and exhaustion, with inclination to vomit. He had had ten stools between midnight and 6 A. M.; the evacuations during that interval were a scanty watery fluid, tinged with blood.

The case was carefully watched, and medicine omitted. From 6 A. M. to 4 P. M., he had 20 stools, the same as above described: anxiety and debility were much increased. Still we were unwilling to consider it an attack of Cholera, and as the man's ailments previously had been so distinctly febrile and inflammatory, there was less fear of sudden collapse from waiting a few hours. From 4 to 10 P. M. he vomited very often, and had four stools, in appearance like pure water; he suffered from cramps in the right thigh and in the belly; the pulse was feeble; tongue cold, moist, and blanched, or bloodless, like a piece of flesh that had been steeped in water; and his countenance was expressive of that extreme anxiety and exhaustion so remarkable in Cholera. He was ordered to take two grains of

opium with 20 grains of calomel, in pills, and immediately after them a cup of hot sago, with $\frac{3}{4}$ iss. of brandy. He soon became warmer, and the pulse revived; the vomiting and disorder of the stomach and bowels were arrested; he slept, and the Cholera symptoms ceased. Afterwards, the dysenteric affection, with bloody evacuations, became again predominant, and was only cured by a long and careful treatment. He left Hospital quite well on the 12th of January, 1831.

There can be no doubt that debilitating diseases of any sort, and more particularly bowel complaints, render patients in Hospital very liable to attacks of Cholera of the worst description.

CASE CXXV.—Joseph Branch, *Æt.* 42; a middle-sized man: was affected with a slight diarrhoea, on the 24th and 25th April, 1826, to which he paid no attention; the purging increased, and on the 26th, at day-light, he began to vomit, but concealed his ailments, until they were observed by one of the sergeants, and he was sent into the General Hospital at 8 P. M. He was then vomiting very frequently, and was purged every half-hour; the stools were copious and watery, and he was suffering from cramps in the toes; the pulse was soft, weak, and rapid, and he had *the cholera visage*.

He was ordered to take three grains of opium in a pill, and to repeat the dose at 10 o'clock P. M.

April 27th.—At 6 A. M. He is now free from cramps, vomiting and purging have ceased; he is

very weak, but the pulse is soft and natural, his tongue is warm, moist, and coated with a little white mucus.

R. Extract. Colocynth. Comp.—Calomel. āā gr. v.

Opii gr. $\frac{1}{2}$ —misce fiant pil. ij. statim sumend.

Ordered 3 oz. of Port Wine in sago, and allowed tea.

Meridie.—The vomiting and purging have returned; the stools are like rice-water; his skin is again cold, but the tongue is warm; pulse 102, soft, and weak, and he suffers from slight cramps in the legs. The return of symptoms is ascribed to his having drank much water. Three grains of opium were ordered to be taken immediately, and to be repeated at 3 o'clock.

Vesper.—At 6 p. m. He has only vomited twice since noon, and the purging is moderated; he is warmer and feels better, but complains of extreme thirst; pulse as above reported. He was ordered to take two grains of opium dissolved in half an ounce of tincture of senna, with one ounce of cinnamon water, and a drachm of Spiritus Ætheris Nitrosi.

April 28th.—He slept and is much better; has not vomited during the night, but has had two frothy fluid stools, the colour of which is nearly white.

R. Extract. Colocynth. Comp.

Calomel. āā gr. v. ter die.

Vesper.—He has had several yellowish frothy, watery stools in the course of the day, and is now suffering from nausea, and inclination to vomit.

R. Extract. Colocynth. Comp.

Calomel. āā gr. v.

Opii gr. i.—misce fiant pil. ii. statim sumendæ.

April 29th.—He had three stools in the course of the night ; they are of a light colour and frothy. There has been no vomiting. He is warm, the circulation is natural, and the tongue is clean and moist. Ordered to take twenty grains of rhubarb, with a drachm of magnesia, in cinnamon water.

April 30th.—He had five stools in the course of yesterday forenoon, and had neither vomiting nor purging since. He slept well, the pulse is natural, and the tongue warm and moist. After this date he took a mild purgative almost every day, until he was discharged on the 15th of May, 1826.

CASE CXXVI.—William Prosser, Æt. 27, a stout man, of dark complexion, was taken ill at 1 A. M. on the 21st of April, 1826, and had three very copious watery stools before day-light ; after which he was purged at least ten times in each twenty-four hours, and vomited as often, until the morning of the 23rd. Admitted into the General Hospital at 9 A. M. on the 24th of April ; the vomiting has ceased, but the purging continues, the evacuations resemble clear water. The extremities are cold, his belly is flat and inelastic ; pulse 96 and not very weak ; tongue white, moist, and warm ; but *the cholera visage* is strongly marked. He has had spasms in his legs which have now ceased, and he is very weak ; but as the doolies were all employed, and he was anxious

for immediate assistance, he with some difficulty walked to the hospital, a distance of nearly a mile.

R. Opii gr. iii.—Aquæ Fontis ℥ i.
 Spirit. Ammoniae Aromat. ʒ iss. misce.
 To be taken immediately.

Vesper.—He has had two stools, like barley-water ; he is free from spasms, but very thirsty and restless ; pulse 106 and weak ; the tongue is cool and the eyes are sunk.

R. Extract. Colocynth. Comp. ʒ ss.
 Colomel. ʒ i.—Opii gr. i.
 Olei Croton. gtt. ii. to be taken in three pills.

April 25th.—He has had five stools in the night, which are in appearance like conjee : he has been vomiting, but his pulse is not very weak.

R. Pulv. Scammon. Comp. (Ph. Ed.)
 Pulv. Jalap.—Pulv. Rhei āā ʒ i.
 Tinct. Sennæ—Aquæ Cinnamomi āā ℥ ss. misce.
 To be taken at 6 o'clock A. M.

At 9 A. M., he had been vomiting often, but had not been purged ; was ordered to take 20 grains of calomel with ten grains of compound extract of colocynth and one grain of opium.

Noon.—He has vomited, and had two cholera stools : he is now quite cold, and appears to be rapidly sinking : the pulse is feeble. Four grains of opium were given in a pill ; three ounces of brandy were mixed with six ounces of hot water, and small quantities frequently taken.

At 2 o'clock he remained very low and weak, therefore three ounces of port wine were ordered, in hot sago.

Vesper.—Vomiting and purging have ceased ; he is warm, and free from spasms ; pulse low.

R. Extract. Colocynth. Comp.

Calomel. \overline{aa} gr. v.—Opii gr. i.

To be taken in pills.

April 26th.—He has had no stool in the night, and appears much better ; the warmth of the surface continues. The pills ordered last night, are to be repeated three times a day.

April 27th.—He has had one natural stool ; the gums are slightly sore.

R. Extract. Colocynth. Comp. gr. x.

April 28th.—He had one stool in the night, of healthy appearance ; and is nearly free from ailment. The extract of colocynth was repeated.

April 29th.—He has been purged once ; the tongue is clean and moist, and he feels well.

R. Puly. Rhei 3 ss.

In Aquæ Cinnamomi $\frac{3}{4}$ i.

May 3rd.—Discharged, to proceed with his detachment up the river in boats.

This man's case appeared nearly hopeless for thirty-six hours after admission into the Hospital. I have never known so much opium required to check purging and vomiting, in any other case, which ultimately recovered : it is probable that eleven grains were retained in the stomach, from the time of his admission into hospital, up to the evening of 26th

April, including a period of about sixty hours. The administration of active purgatives at 6, and at 9 o'clock on the morning of the 25th of April, appears to have been premature and injudicious; for they brought on a vomiting and purging, with extreme depression of vital power, which would have soon proved fatal, if not promptly alleviated by the use of a large dose of opium, and stimulants.

CASE CXXVII.—John Simms, *Æt.* 24, of small size and light complexion, six years in India. An Artillery-man, was taken ill at 7 P. M. on the battery guard, and sent to the Hospital at 9 o'clock; affected with purging, vomiting, and cramps in his legs; the pulse at the wrist had ceased; the surface of the body was quite cold, his tongue was cold, and the voice pectoral: he was suffering from thirst, and indifferent to every thing but the desire of drinking water; he hardly gave any answer to questions on other subjects.

R. Tinct. Opii,—Spirit. *Æther.* Sulph. \overline{aa} 3 i.

Olei Cinnamomi gtt. iv.—*Aquæ Fontis* $\frac{3}{4}$ i. misce.

To be taken directly, with 20 grains of Calomel in powder—and to be repeated in one hour. The Calomel to be placed on the tongue, and washed down with the draught.

At half-past 10 o'clock, he was cold and insensible; respiration was heavy and laborious; vomiting had ceased. He died at 11 P. M. on the 14th of November, 1830.

Dissection,—nine hours after death. The stomach externally was paler than usual, internally towards

the pylorus it was of a pink color, and much contracted. The small intestines were of a pale-pink color, their coats thickened and pulpy, as if from serous effusion between their membranes : their interior filled in some parts with great quantities of conjee-like fluid, in other parts with mucus as thick as paste ; the last foot of the ilium was quite empty, contracted, and internally dry : there was no bile in the duodenum. No other morbid appearance observed.

CASE CXXVIII.—A medical man, 26 years of age, of slight make and delicate constitution, recently arrived from England, had a severe attack of Spasmodic Colic, within a few weeks after landing in Bengal : the constipation attending this disease was most obstinate, and during the treatment he was twice largely bled from the arm, and leeches were repeatedly applied to his belly. After various purgatives had failed to produce the desired effect, the obstruction of the bowels was removed by large enemata given with the pump. He remained in the course of a tardy convalescence, for six days more, using a little mild purgative medicine, and observing the greatest caution as to his food, but gaining strength so slowly that on the evening before the attack of Cholera, when some friends asked how he was ; he said, this was the first day since his illness, that he really felt an increase of strength. At 9 P. M. on the 27 of October, 1830, he was affected with a purging, the stools were copious, watery, and

of a pale-yellow bilious tinge. He did not send for medical advice, nor make his ailments known to his friends till next morning, not suspecting Cholera; he had then sunk into a state of collapse, affording no hope of recovery; though he had not vomited, and had no spasms. Occasional attacks of vomiting took place during the course of the day, and he died in the afternoon. We had some bad cases of Cholera in the Hospital at that time, and the disease was also occurring in Calcutta; but this patient had not left his room for nearly three weeks.

CASE CXXIX.—Thomas Price, Æt. 32, a stout man, of H. M.'s 38th Foot, arrived from England on board the Ship *Buckinghamshire*, and landed on the 2nd of June. Admitted into the General Hospital at 10 P. M. on the 14th of June. 1827. He has been purged for two days past, but did not begin to vomit until he was put into the dooley to be brought to the Hospital. He is at present vomiting, and purged incessantly, and suffers from distressing thirst. Pulse 106, and hardly perceptible; the surface of the body as well as the tongue is cold.

R. Calomel. ʒ i.—Opii gr. ii.

Misce fiant pil. ii. statim sumendæ.

Apply a blister to the scrobiculus cordis.

11 P. M.—Purged twice since last report; the evacuations are a pale greenish water: he is constantly vomiting; the tongue is cold, moist, and clean; he suffers from great anxiety and thirst.

R. Calomel. \mathfrak{z} ss.

Opii gr. ii.—misce fiant pil. statim sumend.

Apply Sinapisms to the feet.

June 15th.—He has vomited only twice, and has been purged five times since last report; the evacuations are watery, and of pale-green color: he is much better, and quite composed; the tongue is warm and moist, but little furred; pulse 108 and weak. Some sago and wine allowed.

R. Calomel. \mathfrak{z} ss.—Extract. Colocynth. Comp. gr. v.

Opii gr. $\frac{1}{2}$ —misce fiant pil. ii.—to be taken at 6 A. M., and repeated at 10 o'clock.

Olei Ricini \mathfrak{z} i. at noon.

Vesper.—He is better, and warm; has had four stools, but no return of vomiting. Pulse 112 and weak.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. $\bar{a}\bar{a}$ gr. v.

Opii gr. i.—misce fiant pil. ii. H. s. sumend.

June 16th.—Has had frequent, brown, watery stools; and much nausea in the night. Pulse 98, face flushed.

R. Pil. Hydrarg.—Extract. Colocynth. Comp. $\bar{a}\bar{a}$ gr. v.

June 17th.—He has only had five stools in the last 24 hours; a slight degree of pyrexia remains. Pulse 98; the skin is warm; his tongue swollen and fissured.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. $\bar{a}\bar{a}$ gr. vi. in pills, at 6 A. M.

Olei Ricini \mathfrak{z} i. at noon.

By these medicines he was freely purged, the evacuations were of dark color, and he was much

better. Castor oil was administered daily, and he was discharged well on the 20th of June.

CASE CXXX.—Mrs. Ann Holt. *Æt.* about 24, landed from England on the 12th of May, 1827, and was troubled with vomiting almost every day till the 18th, when I first saw her at 11 P. M. Her pulse was then 104 and weak; the tongue cold; she had been vomiting, and purged violently since dark; and her extremities were cold.

R. Calomel. \mathfrak{z} i. to be given in pills.

R. Opii gr. ii.—Spirit. Lavand. Comp.

Spirit. Ammonizæ Aromat. āā \mathfrak{z} i.

Aquæ Menthæ Pip. \mathfrak{z} i. misce—to be drank after the pills.

May 19th.—She has not vomited since taking the medicine; was purged three times, the evacuations are copious and like rice-water, with a light slate-colored sediment: the tongue is warm, moist, and white; her face is somewhat flushed, pulse 108, and weak; the extremities are warm. Tea and sago allowed in very small quantity.

Apply eight leeches to the temples.

R. Pulv. Rhei \mathfrak{z} i.

Aquæ Menthæ Pip. \mathfrak{z} i. To be taken at 6 A. M.

Olei Ricini \mathfrak{z} i. at noon.

1 P. M.—She has vomited six times, but the castor oil was not rejected: and she has been purged four times; the stools are copious and of a pale-grey color, as fluid as water; the tongue is cool, moist, and white. Pulse 132.

R. Pil. Hydrarg. gr. v.

Extract. Colocynth. Comp. ʒ ss.—misce, fiant pil. iii. to be given at two o'clock.

6 P. M.—No vomiting; she has had six feculent black stools; the tongue is warm, and very much loaded with white mucus.

R. Olei Ricini ʒ i.—Tinct. Opii gtt. v.

Half-past 10 P. M.—She vomited the oil, and has had two copious, watery, bronze-colored stools. The tongue is warm, moist, and white.

R. Extract. Colocynth. Comp.—Calomel. āā gr. v.

Opii gr. i.—misce, fiant pil. statim sumend.

May 20th.—She has slept, and had one green bilious stool; but there has been no vomiting.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. āā gr. v. at 6 A. M.

Olei Ricini ʒ i. at noon.

4 P. M.—She has vomited the pills and oil; and has had two watery, black stools; the tongue is warm and loaded with white mucus.

R. Pulv. Rhei ʒ i.—Aquæ Cinnamomi ʒ i.

6 P. M.—Had one stool, and has not vomited; says she is better.

Ordered to take some Sago and Wine.

May 21st.—She has had no sleep; but has been purged, and has vomited often in the night, the stools are a reddish bronze-colored water; her tongue is cool and moist; pulse 116 and soft.

R. Opii gr. i. statim.

May 22nd.—She was tranquil, and felt remarkably well all yesterday, therefore no medicine was

given last evening. During the night she vomited occasionally, and had two copious bronze-colored stools; pulse 98 and soft.

R. Extract. Colocynth. Comp. ʒ ss.

Pil. Hydrarg. gr. v.—misce, fiant pil. iii. statim sumendæ.

She was purged freely by these pills, and is much better in every respect. She had no return of unfavorable symptoms. Some mild purgative was continued daily till the 29th of May, when no further treatment was requisite.

Notwithstanding the slight feverish flush of the face, a remarkable degree of exhaustion was produced by a few leeches and the dose of Rhubarb in the morning, and castor oil at noon on the 19th of May. I am of opinion that if twelve grains of blue pill and one grain of opium had been given night and morning, and the castor oil at noon on that day, this patient would have had a more prompt recovery. She was better after taking the opium combined with purgatives late at night on the 19th; derived very great benefit from taking the opium alone on the 21st of May.

CASE CXXXI.—Jas. Beck, Æt. 19, a slight made lad, of light complexion, a sailor of the Ship *Resource*, recently arrived from sea; was attacked with Cholera, and profuse purging on the 11th of October, 1827, and in consequence of extreme coldness of the extremities, water was applied by his messmates, so hot that the skin was blistered on

one foot, and also at the elbow. I could not ascertain what other remedies had been used: and no cause could be assigned for the accession of the disease. On the 12th, the most distressing symptoms, were cramps in the legs, and purging.

He was sent to the Hospital at 5 P. M. on the 13th of October; suffering from cramps in his legs, anxiety, and great thirst: he had a cold tongue, although the extremities were then warm; pulse 116, soft and feeble; and there was pain at the *scrobiculus cordis*. The eyes were glazed, and suffused with florid or arterial congestion, the face was somewhat flushed. He vomited immediately every fluid that was swallowed, but had only been purged four times since the morning. Although the extremities had been blistered by boiling water, the temperature of the body was not uniform. Some of the existing symptoms might have authorised V. S., but the use of the lancet at that stage of the disease, was deemed hazardous, in consequence of the feebleness of pulse, coldness of the tongue and long-continued and profuse purging.

Eight leeches were applied to the temples.

A blister was put to the *scrobiculus cordis*: and Calomel. \mathfrak{z} i. Opii gr. i. were given in a pill immediately.

9 P. M.—There has been no return of vomiting or purging since 5 o'clock; the leeches bled profusely, whereby the flush of his face and redness of the eyes are diminished; he suffers less from thirst,

and the tongue is warm, but pulse continues 116, weak and low ; cramps in the legs have ceased.

R. Calomel. \mathfrak{z} i.—Opii gr. i.

Extract. Colocynth. Comp. gr. v. in three pills.

11 P. M.—The thirst has subsided, and there has been no vomiting or purging since admission.

Oleum Ricini \mathfrak{z} ii.

Oct 14th.—He vomited once, and has been purged three times ; the stools are as black as ink, and scanty ; he feels much exhausted ; the pulse 104, soft, and weak, but his face is slightly flushed. Diet Tea, and thin Sago, with three ounces of Port Wine.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. $\mathfrak{a}\mathfrak{a}$ gr. v. in two pills at 7 A. M. and repeat at 11.

Ordered to take Oleum Ricini \mathfrak{z} i. at 3 o'clock P. M.

Vesper.—He has vomited twice, a pale watery fluid, nearly transparent.

7 P. M.—He has had five stools since last report, which are rather scanty, and of a very dark, bottle-green color ; pulse 98, soft, and weak ; his tongue is quite cold, soft, clean, and moist.

R. Extract. Colocynth. Comp.—Pil. Hydrarg. $\mathfrak{a}\mathfrak{a}$ gr. v.

Opii gr. ss. in two pills at 7 P. M.—and repeat at 10.

Oct. 15th.—He has had four copious, dark, watery stools, but did not vomit in the night ; he now suffers from anxiety, but there is no head-ache ; his eyes are still suffused.

Capiat Olei Ricini \mathfrak{z} i.

Vesper.—He has vomited once, and has been purged four times during the day, the evacuations

are partly of a yellow color. Pulse 98, soft, and natural; the tongue continues quite cold.

After this date, he had mild purgatives repeatedly, and was discharged well on the 12th of November, 1827.

In this instance as well as in the previous case the most efficient relief was afforded by opium; and the administration of purgatives without opium was followed by some prostration of strength. When a proclivity to lowness and collapse exists at the same time with florid arterial congestion of the eyes, and a flushed face, it is difficult to adapt the treatment to all the indications present: but without some depletion we cannot cure the disease. We are therefore obliged to abstract blood, and to order purgatives, although we expect some inconvenience will be produced by the remedies.

CASE CXXXII.—Mrs. Mary Ann Kelly, *Æt.* about 24, a soldier's wife of the 44th Regiment, received into the General Hospital at half-past 9 p. m. May 19th, 1827: states that she was seized with extreme sickness at 1 o'clock last night, ($20\frac{1}{2}$ hours ago,) at first she vomited, and was purged about once an hour, but lately she has been purged every minute; and she appears exceedingly exhausted.

R. Calomel. ʒ ss.—*Opii* gr. i. statim.

Half-past 10 o'clock.—She has cramps in her legs, great anxiety, and thirst; pulse 132, and not very weak; the tongue is warm. She has neither vomited nor been purged since taking the pill.

R. Calomel. \mathfrak{z} i. in a pill,—to be washed down with a draught of

Spirit. Lavend. Comp.

Spirit. Ammoniae Aromat. aa \mathfrak{z} ss.

Aquæ Menthæ Pip. \mathfrak{z} i.

May 20th.—She has slept, the cramps have ceased, and she feels better: pulse 86; since the last report she has had one scanty, green stool.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. $\overline{\text{aa}}$ gr. v. at 6 A. M.

Olei Ricini \mathfrak{z} i. at noon.

4 P. M.—There has been no stool nor vomiting, but the cramps in the legs have returned.

R. Olei Ricini \mathfrak{z} i.

6 P. M.—She is quiet, and easy; had no stool. Let the castor oil be repeated.

Half-past 10 P. M.—She remains tranquil, and is much better. The castor oil has produced two dark watery stools.

May 21st.—She has had one black, watery stool, in the night, with some lumps of fæces; pulse good, and the skin is warm; she feels weak.

R. Pulv. Rhei \mathfrak{z} i. in Aquæ Cinnamomi \mathfrak{z} i.

Vesper.—She has been freely purged, and is better. Mouth sore.

May 22nd.—She has had one stool, consisting of films of mucus in yellow bilious matter. After this date she used rhubarb as an aperient, and was discharged well on the 8th of June.

CASE CXXXIII.—John Fergusson, *Æt.* 23, a sailor of the ship *Euphrates*. A middle-sized man, of

dark complexion, arrived in the Hoogly 10 days ago, from Europe ; has not been on shore, but he and the rest of this ship's crew have been exposed to the sun, and worked hard for some days past in getting up the anchors, &c., the ship having met with unusual difficulties in coming up the river. He was admitted into the General Hospital at a quarter before 10 o'clock A. M. on the 18th of June, 1828, having had a purging for five days : he began to vomit at 1 P. M. yesterday, and says he has had 50 stools, like pure water, since that hour. He is now suffering from great anxiety, thirst, and cramps in the belly ; the face is flushed, pulse low, and oppressed ; and the tongue is cool.

Apply twelve leeches to the temples.

R. Calomel. \mathfrak{z} i. Opii gr. ii.—misce, ft. pil. ii. statim sumend.

Noon.—There has been no vomiting or purging since he came to the hospital, but he suffers from excessive thirst. Pulse 114, and weak ; the face is still flushed.

R. Extract. Colocynth. Comp.

Calomel. $\overline{\text{aa}}$ \mathfrak{z} ss.—misce, fiat pil. iv. statim sumend.

Habeat Enema Purg. cum. Ol. Terebinth. \mathfrak{z} ii.

2 P. M.—He has vomited twice, and had three stools, of pale-grey color. Pulse 114, weak, and oppressed. He seemed to be sinking ; and therefore was ordered a small quantity of sago with Madeira wine.

5 P. M.—Pulse more free ; the face is flushed, and he has pain at the navel ; but he feels warm and

better, the tongue is warm, and he is suffering from great thirst.

Apply six leeches round the navel.

R. Pil. Hydrarg. gr. vi. statim.

Cream of Tartar drink, 4 oz. at a time.

June 19th.—He vomited once this morning, and has had two scanty watery stools, of grey color. He is restless, and very thirsty: the face is flushed; pulse 106, soft, and natural; and the tongue is warm and moist.

Apply sixteen leeches to the nucha.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. āā gr. v.

Opii gr. $\frac{1}{2}$ —misce, fiant pil. ii. statim sumend.

Olei Ricini

Aquæ Cinnamomi āā ʒi. to be taken at noon.

3 P. M.—Vomited several times after taking the pills; and the oil was quickly rejected. He has had two black, fluid, feculent stools, is weak and anxious, and has been tossing about in bed all day.

Ordered to take Pil. Hydrarg. gr. vi. immediately.

A small quantity of sago and wine was given an hour after the pill.

9 P. M.—He feels much better; has had two black watery stools. Repeat the Blue Pill.

June 20th.—He slept little, and has had no stool during the night; but one scanty, brown stool, this morning: he lies on his back, in a state of great anxiety; there is slight tension of the belly, and some tenderness on pressing over the abdomen; the tongue is moist and white. Pulse 108.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. \overline{aa} gr. v. at 6 A. M.

Olei Ricini $\frac{3}{4}$ i. at noon.

Vesper.—He vomited some of the castor oil, with bile ; had three black watery stools, and feels better.

R. Pil. Hydrarg. gr. vi.

Opii gr. ss. in a pill at 8 P. M.

Allowed Cream of Tartar drink.

June 21st.—He has had no stool, and has not vomited during the night.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. \overline{aa} gr. v. at 6 A. M.

Vesper.—He has had no stool, and says he is well ; the tongue is warm and moist.

R. Pil. Hydrarg. gr. v.—H. s.

June 22nd.—No stool ; says he is well, and hungry.

R. Extract. Colocynth. Comp. \mathfrak{z} ss.

Pil. Hydrarg. gr. v.—misce, fiant pil. iii. statim sumend.

These pills had no effect until they were assisted by a purgative enema, and then he had four stools. A few mild purpatives were ordered after this, and he was discharged well on the 1st of July.

CASE CXXXIV.—Edward Enderson, *Æt.* 30, an emaciated man, of light complexion ; a sailor of the H. C. Frigate *Hastings* ; six years in India. Admitted into the General Hospital on the 13th of February, 1826. He has been ill for above two months, with quotidian intermittent, enlarged spleen, and general debility. Bowels free ; tongue moist.

Was ordered to be purged daily with compound extract of colocynth; of which five grains only were given at bed-time: and he took two grains of quinine in solution in two ounces of water, with six drops of aromatic sulphuric acid, daily, at 6 A. M., and the same dose was repeated at noon.

Feb. 19th.—There has been no return of ague, and his appearance is more healthy; the spleen is smaller. The quinine was omitted, and the compound extract of colocynth continued.

Feb. 20th.—He was attacked in the night, with vomiting, purging, and dreadful cramps in the muscles of the legs and belly; but made no report of this illness till day-light, when he was observed to have the sunk ghastly visage and hollow eye, peculiar to cholera; the pulse at that time was not very low, the limbs and tongue not quite cold; but his appearance was exceedingly altered.

R. Calomel. \mathfrak{z} i.—Opii gr. iii.

Misce, fiant pil. ii. statim sumendæ.

A blister was applied to the scrobiculus cordis.

Brandy and hot-water each 1 oz.—ordered to be taken now, and repeated in an hour.

The appearance of cholera subsided in the course of the day, and the next morning he was ordered to take

Magnesiae \mathfrak{z} ii.

Pulv. Rhei—Pulv. Jalap. $\mathfrak{a}\mathfrak{a}$ \mathfrak{z} i.

Aquæ Ment hæ Pip. \mathfrak{z} iss.—to be repeated in six hours, if the first dose should not operate freely.

Feb. 22nd.—He was purged freely by the first dose ordered yesterday. He recovered under the use of aperient medicine, frequently repeated.

CASE CXXXV.—Mrs. Brannigan, *Æt.* 30, a small thin woman; was seized at midnight, with purging, vomiting, and cramps in the legs; and was sent to the General Hospital at 6 o'clock A. M. on the 23rd of May, 1827. The commencement of collapse was at that time evinced by extreme prostration of strength, sunk eye, coldness of the surface of the body, and a weak pulse at 120; the tongue was cool, moist, and nearly clean; her voice was feeble and pectoral. She had not taken any remedies.

R. Calomel. \mathfrak{z} i. Opii gr. ii.

To be taken in pills immediately.

Apply a blister to the scrobiculus cordis.

At 8 A. M.—She had vomited twice, but did not reject the pills; she has had two stools, which are quite white, like magnesia and water; in other respects there is no change since admission: she has occasionally cramps in the legs.

R. Calomel. \mathfrak{z} i.—Extract. Colocynth. Comp. \mathfrak{z} ss.

Opii gr. i.—misce, ft. pil. ii. statim sumendæ.

To take Oleum Ricini \mathfrak{z} i. at 11 o'clock A. M.

Some sago with Port Wine was ordered to be given two hours after the castor oil.

Vesper.—She has had several stools; the pan of the night chair is nearly full of dark-brown water; the surface of the body, as well as the tongue, is warm, the cramps have ceased, and the pulse is free.

R. Pil. Hydrarg. gr. x. Calomel. gr. iv.

Extract. Colocynth. Comp. gr. vi.

Opii gr. i.—misce et divide in pil. iv.

Two pills to be taken at 6, and two at 9 o'clock P. M.

May 24th, 2 A. M.—She has had several feculent stools, of brown color. The extremities and surface of the body are generally warm; the tongue is dry and hot; the pulse has risen.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. āā gr. v.—misce, fiant pil. ii. statim sumendæ.

These pills had produced several dark-grey, copious, feculent stools before 7 A. M.; the patient was then suffering from hickup, but was free from any other unfavorable symptoms; pulse 84 and soft; the tongue was warm, moist, and little white.

This patient recovered slowly, and required great care; being twice during her convalescence affected with dysenteric symptoms; and then she passed some blood with her stools. She used mild purgatives for many days, and left the Hospital on the 25th of June, to proceed in a boat to Chinsurah with her husband; being still very weak.

This woman was nursing a child about six months old, when she was seized with cholera: she would not be separated from the infant, which remained in the bed crawling over its mother when she was suffering severely from the cramps. If cholera were very liable to be contracted by personal communication, this child was exposed to its influence in the

highest degree, but showed no sign of ailment. While the bad symptoms of cholera existed, no milk was secreted ; but during convalescence the flow of milk returned, and after an interval of 12 days the mother nursed her child again, on the 5th of June.

CASE CXXXVI.—John Berrigan, *Æt.* 19, rather a slight made man, with a thin face, and red nose ; recently arrived in Bengal : was admitted into the General Hospital, on the 21st of February, 1826, for a cough of two week's duration. He was well on the 1st of March, and would have been discharged next day, but he was attacked at 4 o'clock A. M. on the 2nd of March, with a watery purging, and was 20 times at stool before half-past 7 A. M. The eyes were then sunk, the countenance was anxious, and he suffered from dreadful thirst, but he had a white moist tongue, and the skin was moderately warm. He spoke of having pain in the belly, but rude pressure over the abdomen was borne without complaint. He was allowed three ounces of brandy with six ounces of hot-water, to be given in small quantities, and a flannel dress was ordered.

R. Opii gr. ii. statim sumend.

Apply a blister to the Epigastrium.

Half-past 8 A. M.—The brandy and opium were quickly vomited, and he is becoming colder and lower. Pulse very feeble, purging continues.

R. Tinct. Opii—Spirit. *Æther.* Sulph. āā 3 ss.

Olei Cinnamomi gtt. v.

Aquæ Fontis 3 iss.—miscæ, to be taken now.

11 A. M.—Much nausea and anxiety, with dreadful distress from thirst, continue; but the purging has ceased; his extremities are warm, and there is an equal, general perspiration over the surface.

R. Extract. Colocynth. Comp.

Calomel. āā ʒ ss.

Camphoræ gr. ii.—misce, fiant pil. iii. statim sumend.

Vesper.—He has had no stool since 8 A. M., and he suffers much from thirst.

Habeat Enema Purg. cum Olei Terebinth. ʒ ii.

March 3rd.—Had no stool: he is suffering from great anxiety, but his pulse is soft, even, and moderate. A purgative enema containing two ounces of oil of Turpentine was ordered.

R. Pulv. Jalap.—Pulv. Rhei. āā. ʒ i.

Magnesiae ʒ ii.—Aquæ Menth. Pip. ʒ ii. misce, to be taken at 6 A. M.

March 4th.—He has been freely purged, the stools are black and feculent: the circulation is free, and all bad symptoms have ceased.

Repeat the purgative as yesterday.

A slight feverish disposition remained after this, which required a repetition of mild purgatives almost every day, till he was discharged from Hospital on the 17th of April, 1826.

CASE CXXXVII.—A Mahommedan Burkandauze, named Shaik Sonawalla, aged 35 years, employed at the Calcutta Great Jail; was taken ill with Cholera about 1 A. M. on the 1st of December, 1831. He made no application for medical aid, and was watched in the guard-room of the Jail by his comrades,

who kept him covered with blankets, and champoed the limbs when the cramps were severe. My advice was not requested until 4 P. M., when the friends thought he was about to die : they asserted that he had been vomiting very often, but had not been purged much until mid-day, at which time cramps in the legs came on, and the purging and coldness were so much augmented as to excite alarm. I found him cold, his countenance sunk and ghastly, eyes blood-shot ; the fingers slightly shrivelled, voice weak, pulse 138 and very feeble ; the tongue moist, and clean ; he was anxious, and the respiration was hurried ; he eagerly requested water to drink. His friends asserted, that he had not swallowed any thing since noon ; and had taken only a few spoonsful of water during the early part of the day. A large pan-full of clear watery fluid had been voided by stool : it was hardly more colored than pure water ; some uncooked rice, very little swollen, was observed at the bottom of this pan. The patient, on being particularly questioned, acknowledged that he had eaten raw rice at a very late hour on the previous evening. The fluid vomited was slimy, and not quite so clear as the stools.

He was made to take 3 i. of Laudanum, with as much Spirit. Æther. Sulphuric. and four drops of Oil of Cinnamon, in 3 iss. of water ; which quickly alleviated all the more distressing symptoms : and he neither vomited nor was he purged afterwards.

At 6 P. M.—He was free from cramps : the pulse 118 ; there was slight return of warmth of surface ;

the tongue was clean and moist : he complained much of thirst. Some thin hot sago with $\frac{3}{4}$ iiss. of brandy was now given, after which he slept.

Dec. 2nd.—He has had neither vomiting nor purging, but he is anxious, weak, and thirsty ; the eyes are blood-shot ; extremities warm ; pulse 92, soft, and weak ; the tongue is nearly clean and dry, with little white appearance in its centre. He was ordered $\frac{3}{4}$ iss. of castor oil with cinnamon water, which purged him four times in the course of the day, and he was persuaded to take a small quantity of sago without brandy. The stools were copious and of dark-grey color. He now earnestly entreated that his friends should be allowed to take him home to his village, which was near. This request was complied with, and he remained at home nearly a month ; but took no medicines except two doses of castor oil. He recovered, and is now employed on the jail duties.

The predominant character of the disease in the last 14 cases was not inflammatory, and the extremely dangerous state of many of the patients did not depend on local inflammation, or on the existence of a morbid condition which could be alleviated in the first instance by blood-letting and antiphlogistic remedies, though leeches were ultimately requisite in some cases for the purpose of removing the local inflammation or congestion which supervened. Purgatives were employed in all these cases, but it will be observed that some caution was requisite in the administration of active cathartics, which in several

instances quickly produced a watery purging attended with lowness, and requiring the administration of opium, with wine or brandy in small quantities.

Mercury will not prevent Cholera.

Although mercury is often found useful in the treatment of cholera, especially in those cases of the febrile form of the disease, in which V. S. is requisite in the first instance ; and in the remote stages of those cases in which the secretions of the intestinal canal and liver remain in a disordered state ; it will not prevent the accession of this disease, even if taken to such extent as to produce salivation ; of which the two following cases are examples. I have known several other instances where persons in a state of salivation have been attacked with the worst description of cholera, attended with collapse.

CASE CXXXVIII.—James Day, Æt. 29, a sailor of the ship *Norfolk*, had ulcers at the orifice of the urethra, for which he took mercury on board ship, and the mouth was sore at the time that he was landed : a looseness of the bowels became troublesome for two days, and therefore he was sent on shore, to the Hospital, in the evening of the 20th of March, 1828. There were then no symptoms except those of common diarrhœa, but he was very thirsty ; the pulse was good ; the tongue was white, but moist. He was directed to take some castor oil.

About midnight he began to vomit, and was attacked with cramps in the legs and arms. He did

not complain of these symptoms till day-light, when he was found in a state of extreme exhaustion, having been at stool 14 times. The pan of the night chair was filled with a conjee-like fluid. There was morbid sensibility at the scrobiculus cordis; the pulse was 96 and soft; and the tongue was moist, warm, and white. Twenty grains of calomel, and two grains of opium were given; and a blister was applied to the epigastrium. Calomel, colocynth, and blue pill, with a small quantity of opium, were afterwards taken. Vomiting and purging ceased before 11 A. M.; but the cramps, thirst, and anxiety were not relieved; coldness then took place, and continued to increase till 2 A. M. next morning, when he died.

CASE CXXXIX.—William Shannon, *Æt.* 35, an emaciated man, came from England in the ship *Herefordshire*: and had intermittent fever for two months during the voyage, for the cure of which disease he was salivated, and the mouth remained sore at the time that the attack of cholera came on. He landed on the 16th of May, 1827. His bowels were very costive on the 20th, and he was without any known cause, taken ill with symptoms of cholera at 5 A. M. on the 21st. He was then bled to 3 xiv. and took two grains of opium dissolved in water. At half-past 9 A. M. he was sent to the Hospital in a state of collapse; and died at quarter past 3 o'clock in the afternoon.

Ammonia.

The beneficial effects of *Liquor Ammoniae Puræ* in Cholera, under certain circumstances, has been mentioned at page 46 of this volume; and in some cases when the low form of that disease is combined with much venous congestion, the *Ammonia* may be employed at the same time with blood-letting. In the following case the circulation was obstructed to so great a degree that only a small quantity of blood could be procured from a vein, and that which was obtained, afforded no relief; on the contrary the patient seemed to sink more rapidly after the use of the lancet; and he did not appear to be much relieved until he had taken the brandy and hot sago. In cases of this sort, in which the disease has continued several hours, we often find such a degree of torpor existing, that all remedies are totally inert.

CASE CXL.—John Brown, *Æt.* 22, a sailor of the ship *Moir*a; a stout man of a light complexion, arrived from England, 10 weeks ago. He was on shore all yesterday, but returned to his ship at 8 o'clock in the evening, and was taken ill at 11 P. M. with vomiting and purging, attended with cramps in his feet; for which he was bled in the night, and he took some brandy, with a medicine, the nature of which he does not know. As he seemed to be in a dangerous state, he was landed and sent to the General Hospital, where he arrived at 3 o'clock P. M. on the 20th of February, 1832. He was then suffering from great anxiety, and pain in the head,

loins, and epigastrium: the peculiar expression of countenance indicative of cholera was present in a very marked degree, there was a livid circle round the eyes, and his fingers were shrivelled; but the pulse was tolerably free, his face was flushed, and the surface warm, although the tongue was cool. The pupils were dilated, and he was thirsty, but not calling anxiously for drink. He was ordered to be bled immediately; but only 10 ounces of blood could be got from the vein, which appeared black as it flowed, and on being left at rest, a small quantity of bloody serum separated: the cruor was very soft and black. He was ordered to take

Calomel. \mathfrak{z} i. in pills, and a draught of
Tinct. Opii gtt. xx.—Aquæ Cinnamomi \mathfrak{z} i.

At four P. M.—He is much weaker, and his face is more livid, the hands are still warm, and he is not suffering from spasms; pulse 132, and much more feeble: he suffers from increased anxiety, and at times lies in a torpid state for a few minutes.

Apply a blister to the Epigastrium and another to the spine.

R. Liquor Ammoniae Puræ \mathfrak{z} i.

Aquæ Cinnamomi \mathfrak{z} iiss.—misce, to be taken immediately. After which, let him have three ounces of brandy in hot sago.

At 5 P. M.—There is a slight increase of warmth, but no other favorable symptom; his pulse continues rapid and weak, there are cramps in his legs at pre-

sent, and he has occasional nausea, but he has neither vomited, nor been purged since admission.

Apply sinapisms to the feet.

Liquor Ammoniaë to be repeated at 5, 6, 7, and 8 o'clock.

At 9 P. M.—He is weaker, and colder: the voice is feeble, pulse 132 and weak; he has had no vomiting or purging.

Let him have 3 ounces of brandy with hot sago.

Apply a large mustard plaster across the lower part of the chest.—The Liquor Ammoniaë to be repeated every hour till midnight; after that, every second hour.

February 21st, at 6 A. M.—He has had a restless night, with constant and distressing nausea, but he has not actually vomited, nor has he been purged. The voice is stronger: pulse 114, but very weak. His tongue is warm, and he says the pain at the epigastrium and in the loins has ceased. The mustard plasters have blistered his feet; and the blisters which were ordered yesterday had commenced to vesicate, when he pulled them off in the night.

R. Extract. Colocynth. Comp.—Pil. Hydrarg. āā 9 ss.

Olei Menth. Pip. gtt. ii. to be taken in pills at 6 A. M., and repeated at 8 and 10 o'clock.

Olei Ricini ʒ iss. to be given at 12, and repeated at 2 o'clock.

At 5 P. M.—He has had no stool, and has not vomited; there is now an uniform warmth of the extremities, the pulse is 104 and soft, the tongue moist and warm. He is free from pain, and the voice is much stronger; but debility continues to

such degree that he cannot raise himself in bed without assistance ; he has slept for two hours this afternoon, and the lurid color of the face is much decreased. A purgative enema was ordered at 5 o'clock, and repeated at seven, by which a considerable quantity of dark-colored watery fluid, of a feculent smell, was brought away. Hot sago with three ounces of brandy allowed.

R. Extract. Colocynth. Comp. ʒ ss.

Pil. Hydrarg. gr. v.

Olei Menthæ Pip. gtt. ii. to be given in three pills at 10 o'clock, and repeated at midnight.

Feb. 22nd.—He slept little ; the pulse is 94 and soft ; the tongue is warm, of lurid red color, moist, and nearly clean ; the skin is now nearly of natural temperature, but not so warm as last night ; the abdomen is doughy, inelastic, and rather full ; and he complains of pain in the belly. He has not vomited, nor been purged during the night.

R. Extract. Colocynth. Comp.

Pil. Rhei Comp. āā gr. vi.

Olei Menthæ Sativæ gtt. ii. to be taken in two pills at 7 A. M., and repeated at 9, and again at 11 o'clock.

At noon.—Pulse 92. The skin is warm, tongue moist and rather more loaded ; he has had three fluid stools of a yellowish-grey color, and has made urine for the first time since his admission into the Hospital. He feels sleepy and thirsty, and there is a slight flush on the cheeks.

Let two more pills be repeated at 3 o'clock.

Allowed some hot tea and bread.

At 7 P. M.—Pulse 96 and soft ; he had two free, fluid stools, of natural color ; he made urine again when at stool.

R. Tinct. Camphoræ Comp. 3 ii.

Aquæ Tepidæ 3 iss.

Sacchari 3 ss.—misce, to be taken at 8 o'clock.

Feb. 23rd.—He had three fluid stools in the course of the night, of natural color ; pulse 88, soft, and free ; tongue moist, nearly clean, and still retaining some degree of the lurid red colour before reported. The belly is soft, flat and elastic ; voice strong, and countenance cheerful ; he is thirsty, but the appearances of cholera have subsided. The feet are very sore from the strong mustard plasters.

After this date he required only mild purgatives, and regulated diet. On the 28th of February he joined his ship which was about to sail.

Cajeputi Oil.

Among the various stimulant and cordial remedies which have been employed in the low form of cholera, the Oleum Cajeputi has been occasionally administered in this country with some benefit, but it has not in general been found to answer the expectations of those who have prescribed it in Bengal. In England it appears to have been employed successfully, by Sir M. Tierney, who recommends 50 drops to be administered in half a wine-glassful of tepid water, and to be repeated every half hour until 250, or 300 drops are taken. He states that

mode of treatment to have been followed with success in the severest cases of cholera, and says that two or three doses, if given at an early period, are usually sufficient to arrest the disease. By a report published at Madras, we find that Mr. Hamilton, Surgeon of H. M. 54th Regiment, tried this oil during a severe epidemic visitation of cholera at Trichinopoly, but he found its effects to be slight, and temporary, and by no means so beneficial as he had been led to expect.

The employment of Cajeputi Oil in the low form of cholera, has not proved so beneficial in Calcutta, as other remedies; the patient whose case is next detailed, though very ill when he came to Hospital, and apparently in a very precarious state, was not considered worse than some others who were treated successfully about the same time with opium and brandy.

CASE CXLI.—Pierre Vinceau, *Æt.* 19, a sailor of the French ship *Cygne*, a slight made lad, of dark complexion, six weeks in Bengal. Admitted into the General Hospital on the 4th of December, 1830, at 10 A. M., in the most alarming state of disease; but no written account of his case was received with him. He states that he was taken ill at 5 P. M. yesterday, with a sensation of weakness, and pain at the heart. Vomiting and purging took place soon after, and he had cramps in the legs during the night. He has been very often to stool, but only vomited four times in the night: the last time at 10 P. M. He has been

thirsty, and drank much water. His voice is good and strong, and there is very little anxiety at present. Pulse 120 and feeble; the extremities are cool and perspiring, but not cold; his tongue is cool, moist, and nearly clean; the eyes are not sunk; he is tranquil, and not now calling for drink. He had one grey, fluid stool, soon after admission, in quantity about 10 ounces.

When the bulb of the thermometer was placed under his tongue, the mercury stood at 91; and the temperature of the extremities was ascertained to be 82. The atmosphere being at this time at 76 degrees of Fahrenheit.

Spirit of turpentine was rubbed to the extremities constantly. Half a drachm of Cajeputi Oil, was administered in half an ounce of cinnamon-water; and the dose was repeated in half an hour. No effect being produced by the two first doses, one drachm of the oil was given at eleven o'clock, and repeated every hour till 3, making in all, six drachms of the Cajeputi Oil.

Half past 3 o'clock, P. M.—The patient has been frequently visited during the interval since 10 o'clock. The Cajeputi Oil has had no effect, and he appears rather worse, and is very slowly sinking into a state of torpor: there has been no vomiting; but he has had three more conjee stools, each in quantity about half a pint. Three ounces of hot sago with one ounce of brandy were directed to be taken after the last dose of Cajeputi Oil.

R. Calomel. ʒ i.—Opii gr. $\frac{1}{2}$.

Extract. Colocynth. Comp.—Asafœtidæ āā gr. v.

Olei Ment hæ Pip. gtt. ii. to be taken in three pills ;
and repeated every hour.

R. Spirit. Ammoniaë Aromat.

Tinct. Cardamom. Comp. āā ʒ i.

Aquæ Cinnamomi ʒ iss. misce,—to be drank after
each dose of pills.

Six o'clock.—He continues slowly sinking. The same pills and draught as ordered at half past 3 o'clock, are to be given every hour till six doses are taken. Hot sago and $1\frac{1}{2}$ oz. of brandy were given at half past 9 o'clock, and one ounce of castor oil at 10.

Dec. 5th.—No stools or vomiting during the night; the extremities and tongue are cold, but the forehead, neck, and chest are hot ; the face is livid ; the pulse at the wrist is barely perceptible: he is restless, and asking for drink ; respiration is hurried and feeble ; the voice is weak and pectoral. Large sinapisms were applied to the belly and to both feet. Oleum Ricini ʒ i. was given every hour ; and 15 minutes after the oil, he was ordered an enema of Ammoniaë Carbonat. ʒ i. in three pints of hot water, to be given with the pump. He derived no benefit from these remedies, and died at 11 o'clock A. M.

Dissection at 4 P. M. ; five hours after death. Much venous congestion of the brain. Both lungs universally adherent, but not bearing marks of the adhesions being recent ; there were a few small dark-grey tubercles in the lungs. All the cavities of the heart

were gorged with coagulated blood; the anterior portions of the coagula were white. The liver was rather large; its surface mottled; its structure was soft, and bled freely when cut into.

The omentum and mesentery were in a state of high morbid vascularity, and that part of the peritoneum placed across the bodies of the vertebræ was in the same condition; the glands of the mesentery and mesocolon were enlarged.

The peritoneal surface of the stomach and intestines, was rather more colored with pink than in the healthy state. The mucous membrane of the stomach was exceedingly vascular, and the coats of the small intestines were slightly thickened. There was much pale-brown fluid in the stomach, and some fluid in the upper third of the small intestines, which was tinged deeply with orange-colored bile; the lower portion of the small intestines contained a pale-grey fluid. The large intestines contained much dark-brown watery fluid. No other morbid appearance was noticed.

Among the remedies which have been tried in the stage of collapse, we find Galvanism, Tobacco, and Injections into the veins, of warm water containing a small proportion of the carbonate and muriate of soda; and although the employment of these remedies in this country, has been almost invariably unsuccessful, it appears to me that some notice of their effects is not entirely void of interest, as the

details comprise facts which tend to illustrate the nature of Cholera, and which are therefore of considerable importance in the history of this formidable disease.

Galvanism.

Galvanism has been proposed as a remedy in Cholera, for the purpose of resuscitating the activity of the nervous system, and removing the stagnation of the blood by promoting the action of the heart and arteries. Some practitioners observing the cessation of healthy secretions in those organs which are principally supplied with nerves from the great solar plexus, imagined that the galvanic influence might not only stimulate the nerves and restore the circulation, but that the same remedy might prove an efficient means of restoring a healthy state of the secretions. The cases in which galvanism has been employed in cholera, are not sufficiently numerous to authorise a positive conclusion respecting its efficacy, and I only mention the subject here, for the purpose of bringing to notice the appearance of air which was observed to a very great extent in the cellular structure around that part of the duodenum, which approaches the right kidney. The emphysema could hardly be ascribed to a putrefactive process at that season of the year, the middle of December, when Fahrenheit's thermometer ranges from 53 to 88°, the mean of the month being 66°.

Two cases of cholera in which galvanism was employed, are recorded in the London Medical Ga-

zette for March, 1832, at page 826. In one of these cases the man was moribund at the time that galvanism was applied, and the patient was only subjected to the galvanic influence for ten minutes before he died. In the other case, a woman aged 25, (who had been suffering from tendency to diarrhoea for a week, and during that period had been frequently intoxicated,) was seized with cholera, and in 12 hours after the commencement of that disease she was found in a state of coldness and collapse, the surface was cold, the pulse imperceptible, and the extremities livid and shrivelled. A mustard emetic was administered, and eight ounces of blood obtained with difficulty by opening a vein in each arm. The blood was dark-colored, and on coagulating, little or no serum was separated. The mustard emetic was repeated, and a draught of laudanum and sulphuric æther was given, but without effect. Galvanism was then assiduously employed for two hours; there were 32 plates, about four inches in diameter in each trough, one wire was applied to the region of the stomach, the other to the spine. The only effect produced was a slight motion of the upper eyelid. The patient died in three hours and three quarters. On dissection "the arterial system was found in a state of congestion, the thoracic and abdominal aorta with their branches were gorged with dark-coloured blood. The left ventricle was contracted, and *contained air, as also the thoracic aorta, and vena portæ*. The liver was congested with blood, and the mucous membrane of

the stomach was paler than natural; that of the intestines was not altered." Was the appearance of air in this instance produced by the galvanism? In the following case a very large quantity of air was found in the cellular structure around the duodenum, but none was observed in any of the blood-vessels.

CASE CXLII.—Joseph Cocket, *Æt.* 19, a middle-sized lad, of dark complexion, a sailor of the French Ship *Magellan*, arrived in the river Hooghly 20 days ago: he went on shore on the morning of the 13th of December, 1829, and was soon afterwards seized with purging, which continued all day; but he paid no attention to it, and took no medicine. In the course of the night he became weaker, and had spasms in his legs. Finding himself very ill on the morning of the 14th, he desired to be sent to the General Hospital, but he did not arrive there till a quarter past 12 at noon. The stage of collapse was then established; the surface was cold, the fingers were shrivelled; the pulse at the wrist hardly perceptible; his voice was feeble, and the tongue cool; he was drowsy, and did not appear to suffer pain: purging and vomiting had ceased. Torpor and death were evidently approaching, but we were unwilling to abandon the man while he was breathing; therefore an attempt was made to excite action by stimulants. A blister was applied to the scrobiculus cordis, and sinapisms to the feet, the limbs were rubbed diligently with spirit of turpentine. Twenty grains of calomel, with two grains of opium, and two drops of

croton oil were given in pills ; and enemata with oil of turpentine were given at two, and repeated at four o'clock. These remedies had no effect. The galvanic pile had been in the meantime prepared, and when it was acting so strongly as to have a powerful effect on several healthy persons, who with myself tried it ; shocks were passed through the patient's arms, chest, diaphragm and liver ; and the galvanism was directed so as to pass through the situation of the great solar plexus of nerves : but he shewed not the least symptom of feeling its influence. Those persons in health, who touched the wires after we had ceased to apply them to the patient, received severe shocks.

Calomel. ʒ i. with Extract. Colocynth. Comp. gr. vi.

Olei Croton. gtt. ii. were given in pills at 6 o'clock.

The patient died at half-past 8 P. M. $8\frac{1}{4}$ hours after admission.

On dissection— $11\frac{1}{2}$ hours after death, we found extreme venous congestion of the brain and lungs ; the auricles of the heart, and great veins of the chest and abdomen, were exceedingly gorged with blood. The liver was soft, and of darker color than usual ; gall-bladder somewhat flaccid, contained bile of a lighter color than natural ; the spleen was small, soft, and adherent to the adjacent parts ; the adhesions apparently not recent. Slight morbid vascularity of the omentum majus, and of the exterior of the stomach existed : the interior of the stomach was covered with a thick paste-like mucus, on scraping off which, much general redness of the mucous membrane was

seen. The small intestines were distended with flatus, and a fluid resembling thin gruel; they were exceedingly vascular, and of a florid-red color, their lining membrane in some parts was much corrugated. There was some morbid vascularity of the great intestines; many of the mesenteric glands were enlarged, but not inflamed. Much emphysema of the cellular structure was observed, about that part of the duodenum which approaches the right kidney.

Tobacco.

The mode in which tobacco acts in alleviating some of the worst symptoms of cholera, does not appear to have been yet satisfactorily explained; still this drug has undoubtedly in some cases produced the most marked and extraordinary effects on patients who were suffering from symptoms that are usually deemed indicative of a hopeless state. From the experiments of Mr. Brodie, there seems reason for believing that the infusion of tobacco, which contains narcotin, exerts its influence chiefly on the heart and arteries; while the essential oil, on which the effects of the smoke of tobacco are presumed principally to depend, acts exclusively on the brain, leaving the power of the circulation unimpaired. Hence some practitioners have imagined it possible to employ tobacco in such manner that spasms might be relieved without subduing the action of the heart, and thereby increasing the tendency to stagnation of the blood. I have employed both the Infusion

and the Smoke of tobacco, as enemata, in cases of cholera in which spasms, obstructed respiration, collapse, coldness and torpor had taken place at an early stage of the disease, and were not preceded by very profuse evacuations. In some of these cases an increased freedom and force of the pulse were observed in the course of a few minutes after the enema was injected; the spasms were allayed, vomiting was moderated, warmth of the surface and increased facility of respiration were observed, and the patients seemed much relieved from many of their more distressing symptoms; a moderate degree of re-action being in several instances produced, affording for a short time hopes of a favorable termination. It is to be regretted that the beneficial effects of these enemata were transient, and none of my patients ultimately recovered. A return of collapse occurred sooner or later, in which a repetition of the tobacco enemata, as well as other remedies proved of no avail. It appeared to me that an Enema prepared with 3 ss. of the leaf of tobacco in $\frac{1}{2}$ a pint of boiling water, quickly produced more decided good effects than the smoke. The enemata of tobacco have been successfully employed by Messrs. Greenhow, Baird, and Fyfe, in Great Britain; and the records of the Medical and Physical Society of Calcutta refer to some cases successfully treated by enemata of tobacco-smoke in this country. I can only suppose that the more favorable result of this mode of treatment, in those cases, may be ascribed to some difference in

the nature or stage of the disease. My own experience of the tobacco enemata does not authorise me to consider either the infusion or the smoke as efficient remedies for the collapse, which supervenes at the latter stage of some of those modifications of cholera which frequently occur in India.

Injections into the veins.

Injections of tepid water holding in solution a small quantity of the carbonate and phosphate of soda have been employed in cholera for the purpose of restoring to the blood its fluidity, and reducing its specific gravity to the healthy standard: in fact, with the view of supplying the system with a substitute for that which had been drained away by the copious watery evacuations. There is not only a plausibility in the proposal, but the immediate effects of these injections into the veins have been beneficial, though in general transient; the freedom of the circulation having been in many instances quickly restored, and the anxiety and oppression of breathing alleviated; in some cases a secretion of urine has taken place after it had ceased for many hours, and some of these patients have ultimately recovered. I am not aware that any precise rules have been laid down respecting the stage of the disease at which the injection of a mild saline solution into the veins may be advisable, but that mode of treatment appears to have been resorted to only at a very hopeless stage of collapse, when extreme coldness, prostration of

vital power, and stagnation of the circulation left little reason to expect benefit from any other remedies. Under these circumstances, namely, being used only on desperate occasions, it is not surprising that the employment of injections into the veins should have been rarely attended with success.

The quantity of fluid that ought to be injected at any given time has not been ascertained with accuracy. In some instances a temporary restoration of the action of the heart and arteries, and an alleviation of many of the worst symptoms, have been observed soon after the injection of a small quantity of fluid into the veins. If the injection be carried on slowly as recommended by Dr. Latta, not more than three or four ounces being thrown into the veins per minute, it appears that four pints may be injected at one time without any inconvenience to the patient; and this quantity may be repeated, when signs of collapse and other bad symptoms return. In one case, (a woman, treated by Dr. T. Craigie of Leith,) 15 pints of fluid were injected at different times in the course of nine hours, and the patient recovered. The proportion of saline ingredients usually employed, has been about the same as that recommended by Dr. Latta, and used in one of his successful cases, namely, one drachm of subcarbonate of soda, and three drachms of muriate of soda, dissolved in six pints of water, at the temperature of 110, or 112° of Fahrenheit. When used so low as 100, it is stated to cause rigors; and when the heat of the fluid injected is raised to

115, it is said to produce sudden excitement of the heart, with a sensation of great weakness. The remarks published by Dr. Wright* in the *Lancet* of the 9th of February, 1833, p. 629, show the general result of the remedy now under consideration to have been successful only in a small proportion of the cases in which it has been employed in Europe. I believe there is no record of a single successful case in which the saline injection into the veins has been employed in India.

* "By the saline injection fluidity is restored to the blood; but it is like water poured into a sieve,—the liquid soon runs off by the bowels, which are not at all acted on by the venous injection, and the patient too often sinks from a state of apparent revival into one of fatal relapse. As a measure of the success which has attended this plan, Dr. Wright has collected from various periodical journals, reports of 105 cases, in which fluid of various kinds, generally a solution of salts, had been injected into the veins of cholera patients. He has arranged them in a tabular form, showing the number of hours which elapsed from the time of attack before injection was resorted to, the quantity injected in a given time, and the event. The following is a summary of his list.

No.	Hours ill.	Injected.	Cured.	Convalescent.	Under Treatmt.	Died.
15..	4 to 12....	324 to 305....	1.....	2	—	12
13..	12 to 27....	323 to 292....	3.....	4	—	6
77..	unknown ..	314 to 640....	1.....	1	15	60
105		314 to 640	5	7	15	78

"The method has not often been successful, and seems now pretty generally abandoned; but, combined with the administration of aperients, calomel, and other remedial measures, it might, perhaps, be of great advantage. It has been by relying on the injections as a permanent instead of a temporary relief, that much of the failure of that system is probably to be attributed."

The most gratifying effects were quickly produced in those patients on whom I tried this remedy; the circulation of the blood was for a time restored, anxiety and difficulty of respiration subsided, *the cholera visage* and peculiar sunk appearance of the eyes, with distressed aspect of countenance were alleviated and removed, and in some of my patients I thought there was reason for a considerable time to expect recovery: but the symptoms of collapse returned, in some instances attended with vomiting or purging; and although the repeated injection of the saline fluid was employed with transient benefit, my patients did not recover. In the employment of injections into the veins, I have been assisted by Mr. Foy, at present the Apothecary to the General Hospital, whose accurate knowledge of his profession and constant attention to his duties have been at all times conspicuous.

Mr. Malcolmson of the Madras Medical service, has employed the saline injections into the veins in seven cases. He found that this remedy in many instances produced a remarkable though temporary effect in restoring the warmth of the surface, and in exciting a return of the circulation, still it appears that none of these patients recovered.

The unfavorable termination of the greater number of the cases of cholera in which the injections into the veins have been resorted to, makes us reflect that the disease does not consist of one single morbid change, but on a series of phenomena,

the progress of which we could hardly expect to arrest by restoring the fluidity of the blood at a remote stage of the disease, more especially as we know that at that period it is often attended by more or less of local inflammation, or other local affection.

The foregoing details oblige us to acknowledge that an efficient remedy for those cases of cholera in which the stage of collapse has continued but a few hours, is still a desideratum in medicine.

CHOLERA IN CHILDREN.

European children under two years of age do not often suffer from Cholera in this country, but the disease proves fatal to a large proportion of those that are attacked at that early period of life; which may be in some measure ascribed to the malignity of the disease, as well as to the treatment employed at its commencement, for, when called to see children suffering from this complaint, I have usually found that cholera had existed for several hours before the relatives were alarmed by suspicion of the real nature of the complaint, and then such powerful doses of laudanum were given, that the child has been found in a state of stupor; the coldness of the extremities remaining, and the fatal event quickly followed. In children under two years of age, if the disease be left to the course of nature the patient usually soon sinks into the stage of collapse, with

mortal coldness; and a distinct re-action rarely takes place. Some morbid heat of the head and chest usually occurs just before death, but too transient to afford room for hopes of a favorable termination. Spasms are not a general attendant on the complaint in these young subjects, who are quickly oppressed by the venous congestion. After the contents of the stomach are thrown up, violent efforts to vomit usually cease; occasional nausea, and slight ineffectual retching occurring now and then; but after three or four hours nothing is vomited, unless the patient be indulged in much drink, though the watery purging continues, with gradual sinking of the pulse, and increasing coldness.

When cholera in young children supervenes on Diarrhœa or Dysentery of several days' duration, the disease is almost inevitably fatal.

In children under two years of age, the first symptoms of the disease are generally attended with extreme prostration, and cold perspirations. In such cases, four drops of *Cholera Tincture**, mixed with a little sugar in a tea-spoonful of water, will very often completely arrest the disease. If the coldness and profuse watery evacuations from the bowels should continue, the dose may be repeated in an hour: after which, if farther stimuli should be re-

* The *Cholera Tincture* is composed of

Tinct. Opii

Spirit. Æther. Sulphuric. āā ʒ ss.

Olei Cinnamomi gtt. xy.—misce.

quisite, we must make use of liquor ammoniæ, with infusion of ginger, or of capsicum ; and apply a mustard plaster for a quarter of an hour to the pit of the stomach ; and in extremely severe cases, similar plasters may be applied to the spine and feet. Should these means fortunately resuscitate the patient, much care will be requisite to prevent a return of the symptoms : every means must be used to sooth the child, and to keep it quiet, for muscular exertion and fretfulness are very apt to produce exhaustion ; and after a repose of 12 hours if there be not free evacuations from the bowels, mild aperients must be used, and great caution in diet observed for some days.

At the *commencement* of slight cases of cholera in children, when the disease is marked by vomiting and purging of a very pale-colored fluid, without pyrexia and not attended by strongly marked symptoms of collapse, the disease is often completely arrested by giving a single tea-spoonful of brandy in a wine-glassful of tepid water, and repeating it in an hour if the symptoms continue.

In the treatment of young subjects, when they are seen in the febrile stage of the disease ; I have usually given to patients between two and four years of age, four grains of calomel : and if the evacuations have been profuse, I add 15 drops of Tinctura Camphoræ Comp. in a tea-spoonful of hot-water ; and repeat the dose in an hour if the symptoms continue. Should these means not check the

disease, a third dose of calomel is given in an hour more, with six drops of the Cholera Tincture. When the 2nd or 3rd dose of medicine has not proved effectual in arresting the progress of cholera in young children, I have seldom found that subsequent treatment was of much avail. As soon as the stomach is tranquillized, and will retain food, let a tea-spoonful of brandy, or a dessert-spoonful of Sherry wine be mixed with a coffee-cupful of thin arrow-root; a table-spoonful of this may be given once every half-hour until the coldness of the surface subsides: after which if febrile symptoms continue, it is necessary to give a dose of rhubarb with two grains of calomel every eight hours, and a dose of castor oil in the intervals between the doses of rhubarb; so that a mild purgative shall be taken every four hours during the day, until a moderate purgative effect is produced; smaller doses, at more distant intervals, being requisite for some days afterwards, till the secretions are restored to a natural state. There is usually some obscure pyrexia, with much languor for some days, in European children who survive an attack of cholera; therefore the diet should be regulated so as to support the strength, without exciting fever. When the cholera symptoms in children, are less severe and more protracted, while the coldness, and low form of the disease remain; there is usually great thirst and anxiety. In this case, large draughts of cold water have decidedly caused a return of the vomit-

ing, and hurried on the stage of collapse. The least injurious drink, in the cold stage of the disease, is an infusion of mint, with a moderate proportion of cardamoms; or a weak infusion of ginger, or pepper in water, drank in small quantities and cold.

During an attack of Cholera, children should be wrapped in warm flannel, and encouraged to be quiet in the recumbent posture. In patients between six and eight years of age, the above doses of medicine are to be increased one-half; and may be doubled for those more than eight years old.

Children between two and four years of age, are in this country occasionally attacked with a frequent purging, the evacuations consisting of a fluid which is nearly white, and like very thin gruel. This is not attended with vomiting, nor is there usually coldness of the surface at first, on the contrary the skin is in general perspiring, and there is a slight degree of morbid heat. A purging of this sort produces great prostration of strength in the course of 12 or 14 hours, and if the disease be not checked, it sometimes terminates in cholera. The most efficacious treatment in such cases, is to keep the child as quiet as possible, and to give one of the following powders every six hours:

R. Calomel. gr. xii. Pulv. Opii gr. i.
Pulv. Scammoneæ Comp. (Ph. Ed.) gr. xxiv.
Misce et divide in Chart. vi.

Very little food should be given; sago and tea are usually sufficient.

CHOLERA IN ASIATICS.

When Cholera attacks robust Asiatics, who are living in affluence, they very seldom have that form of the disease which is at the commencement combined with pyrexia and inflammation ; and that description of the disease which usually affects the poorer natives of Bengal, is still more rarely attended at its commencement with febrile or inflammatory symptoms, as they commonly suffer from the low form of Cholera, with sudden coldness and early collapse. The visceral disorder which is most commonly found to occur after violent attacks of this disease in natives, is a sub-acute description of Dysentery ; but they occasionally suffer from dyspeptic symptoms and emaciation.

The Cholera happening to natives of this country, marked by early coldness and collapse, and occasionally attended with severe spasms, is usually a more rapid and more fatal disease than we find it in Europeans ; consequently we do not often see Asiatics in a state requiring V. S., or at that stage of the disease when we might hope by bleeding to relieve the system from increasing congestion. Very few natives of this country recover from Cholera, if left without remedies ; whereas, if promptly treated, the majority of ordinary cases are cured. A tea-spoonful of laudanum with a spoonful of brandy, or a tea-spoonful of laudanum with as much spirit of sal volatile, in a wine-glass of water, if given at the first moment of the at-

tack, very generally arrests the disease instantly. A gentleman who had a numerous retinue of servants, used to keep a vial of laudanum, and another of spirits of hartshorn on his dressing table, in charge of a sirdar bearer, who being always present in the house, had orders to administer a tea-spoonful out of each vial, mixed with a spoonful of water, to any native that might be attacked with Cholera. Under this mode of treatment, no man died for many years. Others have been nearly as fortunate in checking the early stage of Cholera, by keeping a bottle of Tincture of Rhubarb in readiness, and giving a table-spoonful to any native *immediately he was attacked* with Cholera. If stimuli are requisite after the 2nd dose of laudanum, Liquor Ammoniaë is the best. I have found it convenient to keep the *Cholera Tincture*, mentioned at page 176, always in readiness: a dessert-spoonful in a wine-glass of water to an adult, if given early in the disease, I think generally answers better than any of the above remedies.

If the first dose of either of these medicines be rejected by the stomach, or fail to have the desired effect, it should be repeated in one hour; after which, if the symptoms continue, six grains of blue pill with one grain of opium, and two of Asafoetida in a pill, are to be given an hour after the 2nd dose above ordered; and repeated every 2nd hour while vomiting and purging continue. By whichever of these modes the first approach of an attack of Cholera in a native is arrested, it is usually proper to order a cup of hot

sago, within an hour after the medicine ; and if the patient be a weak person, and any degree of coldness remain, a spoonful of brandy ought to be added to the sago. More sago may be given after a few hours ; and provided the disease be arrested, we should allow the patient to remain quiet, wrapped in a blanket for eight or 10 hours, and then give him a dose of castor oil.

In a few cases where febrile symptoms remain after a Cholera attack in natives, leeches are requisite to remove local congestions and inflammations ; and four grains of blue pill with eight grains of compound extract of colocynth, may be given daily in the morning ; followed in six hours by an ounce of castor oil, if the patient be not purged by the pills. I have seen some natives affected with the worst symptoms of Cholera, in whom that disease was attended with Gastro-enteritis.

In native cholera patients who have symptoms of Spleen Disease, mercurial preparations should be omitted. Asafoetida combined with opium, often has a remarkably good effect on natives who are suffering from cholera symptoms, and slowly becoming cold ; the oriental mode of administering it, is to take two grains of opium with as much Asafoetida, and four grains of long-pepper, which being made into a soft pill are chewed and swallowed slowly with the saliva. I have ordered this prescription, with the addition of six grains of blue pill, and two drops of Oil of Peppermint, direct-

ing the medicine to be chewed and swallowed. It has been the means of curing many natives who had become cold, and whose pulse was rapid, feeble and hardly perceptible. The warmth was gradually and slowly restored, and the circulation recovered its natural strength after the use of this medicine, nothing being required but a few moderate doses of castor oil, and attention for some days to regulate the food used by the patient.

FACTS RELATIVE TO CONTAGION IN CHOLERA.

It is an object of much importance, to ascertain if possible whether Cholera be a Contagious Disease, and liable to be communicated generally to those in health, by means of a virus generated about the persons of the sick, and conveyed either indirectly by means of clothes or goods, or received directly by personal contact or near approach to patients; whereby the disease is produced, independently of other exciting causes. If it should appear, that Cholera is *generally* propagated by means of some noxious emanations from the persons of the sick; the strictest quarantine regulations would of course be advisable. On the contrary, should we observe that the disease is neither generally, nor even frequently found to affect those who are most exposed to personal communication with the sick, under such circumstances that if contagion existed, we might

reasonably expect it would be present in its most concentrated and active forms ; we would then doubtless abandon all idea of retarding the progress of Cholera, by interdicting direct intercourse with the sick, or with those who may be exposed to any emanations from the bodies of persons suffering under that disease.

I will now proceed to state such facts as appear conclusive with respect to the Cholera of India ; shewing the results of unrestricted communication with the sick : and if the disease neither generally, nor frequently attacks those exposed to constant communication with the sick ; few persons will deem the danger great, from slight and transient intercourse with Cholera patients. If the disease ever possess contagious properties, assuredly there could be no difficulty in pointing out the particular instances of contagion, at the time that they occur.

If the disease were contagious, the persons most exposed to contract Cholera in the General Hospital at Calcutta, would be those having charge of the bedding and clothing, and those employed in personal attendance on the patients. The man who has charge of the Hospital clothing, and his assistant, both attend in the wards every morning, changing the bedding of one ward each day on ordinary occasions. But when Cholera exists, these people are obliged in the majority of cases, to change some of the bedding of the patients having that disease daily or oftener when soiled ; for which purpose they

come to the bedside, taking away with them the dirty bedding, which is given to the head-washerman.

Two clothes-keepers have been employed at this Hospital, in 25 years; and three head-washermen during the period of 24 years; none of these men have had Cholera, neither have any of the subordinate washermen or people employed about the clothing and bedding stores ever had the disease.

The native dressers have daily the most unreserved communication with the sick, changing the applications over leech-bites, and the bandages to the arms of such as are bled, dressing blisters, and applying sinapisms; not one of these men has ever suffered from the disease. Buctourie, the head native dresser, who instructs the subordinates and attends with them alternately while at their duty, has been constantly employed at the Hospital for 26 years. He is a clever man, of good character, and asserts that he has never known one of the Hospital servants to be attacked with the disease.

The sweepers who clean and change the close-stools, as well as the pans in which the matter vomited is received, and who wash such patients as may be helpless, have never been known to suffer from Cholera. It may be supposed that the occupations of the sweepers, are usually such as might be expected to blunt their susceptibility to disease, or to the effects of any ordinary exposure; but this will not be urged respecting the Hindoo coolies, who are employed in attendance on the sick, and are obliged to be

much in contact with all bad cases of Cholera, to keep the blankets from being thrown off, and the men from falling out of bed, when in the worst stages of the disease, and suffering much from jactitation and restlessness. These coolies are also employed to rub and champoo the extremities of the Cholera patients; and often cannot avoid inhaling the breath, as well as the exhalations from the bodies of patients, in the most deplorable stages of the disease. Not one of these men has ever suffered an attack of Cholera. The young students, who are under a course of medical instruction, at the H. C. School for Native Doctors, are usually in attendance, and assisting at the Hospital when Cholera is prevailing in a severe form, and when great numbers of patients are admitted with that disease. In March and April, 1827, when the Hospital was unusually crowded with Cholera cases, and all the attendants much distressed and exhausted by the severe duty, a number of the young students from the school were brought to the Hospital, and placed in attendance over the worst cases, being relieved regularly day and night. These young Asiatics performed their duties with great diligence, assiduity, and humanity for many days and nights, and none of them suffered by this constant exposure to whatever may be contagious in the emanations from Cholera patients, as well as the frequent contact of their persons. I publish these statements, after having made the most careful observations on this subject, when the disease has been

prevailing during my residence at the Hospital, and after the most diligent inquiry relative to the same points during the last 14 years. A remarkable instance of exposure, with impunity, to any morbid causes arising from the person during Cholera, is recorded at page 146 of this Volume.

By Mr. Henderson's account of the disease which raged on board the H. C. ship *Berwickshire*, in Bombay Harbour, in June, 1830; it appears that 94 men were taken ill of Cholera within a few days, of whom 38 died. A large proportion of the sick was landed and treated at the Bombay European Hospital, and 16 of the deaths occurred in that Hospital, where there were at the time more than 100 patients and attendants, not one of whom contracted the disease.

We have strong evidence that Cholera is not readily communicated by personal contact, or frequent and close intercourse with the sick, in the facts stated in the Madras report on Cholera drawn up by Dr. Scott, by which it appears that in the course of five years during which Cholera raged at that Presidency, the mortality among the European troops from Cholera, was at the annual rate of one death to every 72 men. Whereas the medical officers, who were at all times infinitely more exposed to contact of the Cholera patients, and to the morbid effluvia arising from their bodies, suffered only in the ratio of one death in every 77 individuals yearly. With this statement, we must remember the incessant

fatigue and privations to which medical men are liable whenever Epidemic Cholera prevails, and from which we should have expected to find that they suffered more frequently than other Europeans who were less exposed at the time that epidemic Cholera existed.

The History of Cholera in India, presents us with a vast number of instances, where, either a body of healthy troops has joined and encamped along with those among whom the Cholera was existing in the most violent and fatal form ; or where a detachment in which the disease was raging, has joined a healthy encampment, and the disease has not been in either case communicated to those in a healthy state. A body of Holkar's Reformed Cavalry, 500 strong, was posted at Mahidpore, adjoining to the camp of above 2000 Bengal troops and followers, among whom the Epidemic was prevailing ; and the Cavalry did not suffer from the disease, although a Cholera patient from the Bengal division, was brought to their camp, and went through every stage of the disease among them. In like manner, Casement's Regiment of Irregular Horse joined the Hansi division of the Army, and remained with that division without contracting the disease, at the time when the Epidemic Cholera was at its height. We may also refer to the circumstance stated at p. 36 and 37 of this Volume relative to a sickly detachment of 90 men which joined the camp at Saugor, but did not communicate the disease. More than a

hundred such instances may easily be collected, by any one who will take the trouble to make critical inquiries respecting the History of Cholera for the last 15 years. The facts above cited, are sufficient to prove that the Cholera in India, when existing in its most aggravated form, is not a contagious disease; and that there is no virus generated in or about the sick, by means of which the disease may be communicated to persons in health. The facts which prevent our acknowledging that the Cholera of Bengal is contagious, are numerous, and well authenticated, and the details are precise.

I am desirous of mentioning that when Epidemic Cholera has prevailed in Calcutta, and we have had numerous admissions of that disease into the General Hospital, more especially if the wards have been much crowded at the time; we have very frequently had sick and convalescents attacked in Hospital, and there has evidently been a strong tendency among the patients who have been for many days, or weeks under treatment for other diseases, to lapse into the low form of Cholera, with early accession of collapse, coldness and cessation of the pulse. It has generally happened that those attacked in this manner, have been in parts of the Hospital remote from Cholera patients, very often in a different building, and precluded from any direct communication with those who were brought in with Cholera. Moreover, these cases of the disease occurring in Hospital, have generally happened at

times when we knew that severe and sudden attacks were frequent in persons living at various and distant parts of the town and suburbs of Calcutta.

There can be no doubt that debilitating diseases of any sort, and more particularly bowel complaints, render patients in Hospital very liable to attacks of Cholera of the worst description; but I am unacquainted with the history of any Hospital, which affords proof that the most aggravated forms of Cholera have ever proved contagious.

The free ventilation which is everywhere obtained in India, not only in the Hospitals but in the houses of Europeans, might much retard the spreading of diseases which are found to be actually contagious in the close and ill-ventilated dwellings of the poor in many other countries: and we know that in India the natives are disposed for a time to desert their villages when a remarkably virulent endemic visitation occurs. I can readily believe that when Cholera appears in a ship crowded with numerous poor emigrants, and numbers are attacked with that disease, that some individuals may become ill from the influence of seeing the effects of the Cholera, and that others may have both vomiting and purging, or fever, in consequence of the stench, closeness and bad air, combined with the distress of witnessing the disease in those around them. It appears that the modification of fever which Sir W. Russell observed to attend a large proportion of Cholera cases in Russia, was unlike that which he had seen in this country; and

it is very probable that the difference in the febrile symptoms, may have arisen from the difference of climate and imperfect ventilation in small rooms in the north of Europe.

The foregoing details may show us that the morbid condition which is of the greatest importance in cholera, is a peculiar depression of the vital power, with disorder or total cessation of the functions of those organs which are supplied with nerves from the pneumo-gastric and great solar plexus. When the causes of cholera act in the most intense degree, as is often the case on the commencement of epidemic visitations of this disease, the nerves above alluded to, appear to be paralysed to a greater or less extent, and the whole of the functions of organic life are disordered. Animal heat is depressed, the circulation of the blood is embarrassed or arrested, the secretions cease to be performed as in health, and although breathing may be for a time mechanically continued, the vital influence of respiration is suspended, and a state of Asphyxia more or less complete is produced. It very seldom happens that all the functions of the system are disordered in the same degree; sometimes coldness of the surface, and a profuse discharge of morbid secretions from the intestinal canal, are the predominant symptoms; in other cases violent spasms of the muscles and obstructed circulation; in others the lungs and brain seem to suffer severely, though the intellectual faculties are in general little or not at all impaired.

The vomiting, purging and spasms may each exist in a very distressing degree, for a long time, without being attended by much danger, unless they are combined with asphyxial symptoms at an early period, or with the collapse which is found to supervene at various stages of the disease. Probably the copious watery purging is not of primary importance, as an event in itself directly tending to destroy life; but as we observe that its continuance, together with the other symptoms of cholera, is productive of exhaustion, and as the frequent dejections may be among the causes by which the blood is reduced to a thick and tarry state, the continuance of such evacuations will claim due attention.

Some anomalies may be observed, if we advert to the changes which take place in the fluids in cholera, which are difficult to explain. The blood is sometimes found to be black, thick, and tarry, and separates no serum, in patients who have not suffered from much purging, whereby the blood might have been deprived of its more fluid parts. In some cholera patients the blood first drawn was black, and did not separate any serum, but on a second bleeding a short time afterwards, nearly the usual quantity of serum was separated, although the patient had not been allowed drink in the interval. I regret that the specific gravity of the blood under each of these circumstances was not ascertained. In cases in which there has been a total absence of bile in the evacuations, I am not aware that any of the component

parts of the bile have been ever detected in the blood of those patients; whereas, when there was a cessation of the secretion of urine, urea has been found in the blood*. Notwithstanding the inspissated state of the blood which takes place in the worst cases of cholera, and is supposed to depend on profuse watery evacuations; we usually find that a restoration of the secretion of urine is found to be a favorable circumstance. It is, in fact, one proof that a healthy action of the system has commenced. However, as a beneficial change occurs, at the same time with this farther abstraction of fluid from the blood which is already in a thickened state, there is room for doubting whether the inspissated condition of that fluid might not depend in some degree on other causes than the drain of aqueous fluid from the system.

If the patient be not destroyed by the violence of the disease at its commencement, re-action takes place; but like the onset of the disorder, the changes do not take place uniformly in all the organs, or to the same degree in each of them; re-action appearing in some parts of the system, while others are still oppressed and in a state of torpor. This irregular re-action serves much to embarrass the treatment; depletion by V. S., or leeches, and purgatives, being requisite to answer some indications, while others demand the

* It is still a more remarkable fact, that when the kidneys of an animal are extirpated, the blood is found after a few hours to contain urea, no trace of which I believe exists in the blood of healthy animals.

use of stimulants ; in the same way that in the stage more distinctly marked by oppression, we are occasionally called on to advise V. S. for the purpose of removing the load from the heart and arteries, at the same time that we administer stimulants to maintain those actions that are essential to the continuance of life.

The numerous examples of the disease which have been detailed in the foregoing pages, may convince us that cholera cannot be considered as one uniform morbid condition, since we see that the predominant character of the disease varies much at its commencement, and is often found to change during its progress ; a series of disordered functions and diseased actions occurring, which vary in intensity, and are combined in a great variety of ways. Hence we see the inconsistency of those who assert that the phenomena of this disease are always the effects of inflammation, and it is evident that their practice founded on such an assumption must be often not only useless but injurious. A pyrexial condition of the system, and indications of local inflammation occur with the earliest symptoms of the disease in some cases ; while in others no sort of re-action is evident, the patients sinking exhausted by profuse cold sweats and frequent watery discharges from the bowels.

The observations of Mr. Bell on the phenomena and pathology of cholera are so perspicuous, that the greater part of his opinions will be adopted by those practitioners who have had the most ample experi-

ence of this disease, and who have most industriously investigated its character.

The peculiar alvine evacuations which are usually denominated the *true cholera stools*, (or from their resemblance to rice-water, the *conjee stools*,) are so generally observed in the worst cases, that the careful examination of such evacuations appeared to me of some importance with reference to the pathology as well as the treatment of cholera; but when we advert to the modifications of this disease, and the different conditions of the constitution, as well as the various degrees to which inflammation is found to exist in different organs, and especially in the mucous coat of the intestines or parts adjacent, it would be unreasonable to expect that the alvine evacuations will be found exactly of the same nature under all these circumstances. Investigations of this sort, were at one time viewed with much interest by those practitioners who supposed that the copious watery evacuations were the principal cause of the fatal event, by draining from the blood those constituents of that fluid which are essential to life:—and that by taking direct means of restoring to the blood the degree of specific gravity and fluidity which corresponds to the blood of a healthy person, the worst symptoms of cholera might be alleviated, and the disease cured. Since it has been ascertained that in general little or no permanent benefit follows the use of saline injections into the veins, the result of chemical examination of the peculiar nature of the

alvine evacuations has been in a great measure disregarded; although the unfavorable prognosis derived from continuance of the subalbid stools is unchanged.

The following were the results of the examination of the fluid portion of *the conjee stools*, in a number of cases, from the year 1828 to 1832.

1st. On being tested with litmus paper, the fluid in general appeared to be neutral; but when any re-action was observed, it was a slight reddening of the litmus paper denoting the presence of an acid.

2nd. The fluid was not coagulated by heat, even when the temperature was raised to the boiling point.

3rd. When treated with pure alcohol, it was not coagulated; but in a few rare cases a very trivial opacity appeared on the addition of the alcohol.

4th. When treated with a solution of oxymuriate of mercury in distilled water, a slight opaque cloud was *sometimes* observed, which in 12 hours subsided to the bottom of the test-tube, forming a minute sediment.

5th. The solution of sub-acetate of lead, when dropped into the fluid, even in the most minute quantity, instantly caused a curdled appearance, and a copious white precipitate subsided in the course of an hour.

These results of the examination of the conjee stools of patients who were suffering from cholera in Bengal, induced me to believe that in these cases the alvine evacuations consisted of mucus and a peculiar morbid secretion. These evacuations not coagulating on the application of heat, or on being tested

with the oxymuriate of mercury; but only rarely affording a slight turbid appearance on the use of the latter test, or a few small flocculi when exposed to a heat equal to that of boiling water; and their containing no uncombined soda, induced me to believe that they did not in general consist of the serum of the blood*. The minute indications of albumen which were observed in a few of these experiments, bore no proportion to that quantity of albumen which renders the serum of the blood coagulable by heat, or causes it to afford a precipitate on the addition of the oxymuriate of mercury. Hence it did not appear to me more reasonable to consider the cholera stools were the serum of the blood on account of the minute quantity of albumen occasionally present, than it would be to say that the albuminous urine which is found in some diseases, is the serum of the blood; though we know that both the fluid cholera stools and the urine are secretions from the blood. However I have satisfied myself that in some instances fluids which were drank by the patients have been voided unchanged, having passed through the intestines in less than three hours.

When the solution of the sub-acetate of lead was added to the subalbid alvine evacuations of cholera patients, there were in all cases the most ample and immediate indications of the presence of mucus. It

* Dr. Christie states that he found the subalbid alvine evacuations of cholera patients to consist of pure serum, and some other authors adopt the same opinion.

appears that this test of the distinction between animal mucus and albumen may be considered somewhat equivocal, for although recommended as the best test of the presence of animal mucus by Dr. Bostock himself, he says, "Animal mucus appears to be nearly related to albumen, and indeed the constituent upon which its characteristic properties principally depends, would seem to be a mere modification of this substance." *Bostock's Physiology*, vol. I. p. 48.

I am desirous of expressing my opinions arising from the examination of the cholera stools, with much diffidence, since I observe in numerous instances, great discrepancies in the conclusions to which chemists of eminence have been conducted by their researches on the application of chemistry to the elucidation of physiology and pathology. Let me rather say, as the Florentine Academicians did with respect to some of their investigations, "For all this we dare not be positive but there might be some other cause thereof, since we were deficient in making all the trials necessary to clear the experiment."

The most extensive and most minute examinations of the fluids in this disease, which are on record, are those made by Dr. W. B. O'Shaughnessy when the cholera raged at Newcastle, and I have permission here to allude to the results of his inquiries on this subject. In above 570 cases in which the dejections were examined, the fluid was found neutral in nearly ten per cent. of that number, in about one

third of that proportion the stools were acid, and the rest were alkaline. Dr. O'S. describes the summary of his experiments as denoting a great but variable deficiency of water in the blood ; and a decrease or total absence of the carbonate of soda, as well as a remarkable diminution of the other saline ingredients, at the same time that urea was found in the blood in considerable quantity. A preponderance of alkali, and of the other saline matters deficient in the blood, was found in the dejections of these patients. He admits that the deficiency of water, and the absence of alkali in the blood ; as well as the presence of alkali in the dejections, are not proved to be universal facts, though rendered very probable. The absence of water and saline matters, are regarded as effects, and not as causes of the morbid condition constituting cholera, and these effects are not considered essentially connected with the progress or event of the malady ; for cases are not uncommon in which death takes place in a very short period of time, and without the occurrence of alvine evacuations. However, he considers the inspissated state of the blood as a powerful adjuvant in the production of the fatal event ; but states his belief that the remote cause of cholera does frequently produce death by the unknown agency it exerts on the nervous system, independently of this thickened state of the blood.

CHAPTER VI.

F E V E R S.

THE observations contained in this chapter, will be limited to those circumstances which occur generally in the course of the Fevers of Bengal ; and although such modifications of disease as we shall have to describe, may not be deemed absolutely peculiar to this country, still they appear to be so important, as to require a particular detail of their predominant characters and of the treatment which is usually found most successful. It is my intention to avoid, as much as possible, any disquisition on the proximate cause of Fevers, or on the more abstruse points relative to those diseases. Nevertheless, it may be necessary here to state, that I cannot subscribe to the doctrine which considers Fever and Inflammation in all respects identical, and which infers that Fever *always* depends on local inflammation ; for although our Bengal Fevers are probably more generally attended with inflammation of some organs, at particular stages of the disease, and more frequently followed by obstinate and extensive visceral disorders, than the Fevers of any other country ; still we have strong evidence that Fever in its early stage, differs widely from the commencement of local inflammation. The

most obvious point in which this difference consists, appears to me to be the extensive, nay almost general affection of the system with which Fever commences. The indications of disease, evinced by symptoms affecting every part of the body, would lead us to believe that the efficient causes of Fever act primarily on the nervous system ; as the earliest phenomena of disease consist of more or less disorder affecting that system, at a time when other indications of an invasion of disease are obscure. Thus, in incipient Fever there is morbid sensibility to external impressions, transient chilliness, languor, anxiety, and that sort of mental indisposition and loss of energy which render the patient unequal to ordinary attention and application to business : he passes restless nights ; there are transient pains in the head and joints, with a sensation of debility, weariness, and soreness of all parts of the body. The secretions soon become disordered, and we very frequently find a more permanent coldness of the extremities, and torpid circulation in the minute vessels on the surface of the body ; at the same time that the action of the heart and arteries is weak, and sometimes though not invariably, more frequent than in health.

Compare the incipient stage of fever, with the commencement of local inflammation, or with the symptoms during any part of its progress even to the conclusion ; and the difference of the two diseases will be evident. If the early phenomena of Fever above noticed, were acknowledged to depend on in-

flammation, and we had any criterion by which we could be supported in the opinion that Fever and Inflammation are identical; we should be obliged to admit that when the febrile symptoms are slight, the inflammation is general, affecting all parts of the body; whereas, in most instances when the symptoms of local affection are limited to one organ, the Fever is much more intense. In the progress of Fevers, when local inflammation of particular organs supervenes, (which sometimes happens at a very early period, after the invasion of febrile symptoms,) the character of the disease undergoes a change. No one can observe the manner in which incipient fever affects the system generally, without calling to mind Dr. Fordyce's comprehensive yet concise definition of Fever. "A Fever is a disease that affects the whole system; it affects the head, the trunk of the body, and the extremities; it affects the circulation, the absorption, and the nervous system; it affects the skin, the muscular fibres, and the membranes; it affects the body and affects likewise the mind. It is therefore a disease of the whole system in every kind of sense. It does not, however, affect the various parts of the system uniformly and equally; but, on the contrary, sometimes one part is much affected, in proportion to the affection of another part." If any thing can be more complete than this, it is Dr. Southwood Smith's definition; and the distinctions which he so ably points out between Fever and Inflammation.

It is not in the early stage alone of the Fevers of this country, that we are obliged to recognise the difference between fever and inflammation ; we have every season opportunities of observing the progress of disease in some of the Remittent Fevers of Bengal, in which the unfavorable condition of the patient does not appear to depend on any morbid changes allied to inflammation ; and in these cases the disease is most promptly and most effectually remedied by those means which are generally of little avail in the treatment of inflammation.

I shall not here treat of those febrile affections, which are so slight as to require only rest for a few days, with mild purgatives and barley water ; such cases do occur in this country, but the relative proportion of severe and dangerous fevers, is much greater here than in Europe ; and to those severe cases I would now direct my observations.

The circumstances which appear to me most remarkable in the Fevers of Bengal, are the rapidity with which those diseases proceed towards a fatal termination ; and the violence of the re-action at some seasons of the year ; while we occasionally find at the same season an equally rapid course, and fatal tendency, in patients where the symptoms are so obscure, that there is some hazard lest the disease be either entirely neglected, or allowed to make considerable progress before the practitioner adopts a sufficiently active treatment. The early accession of local inflammation to a dangerous degree, and the extent and

obstinacy of the visceral disorders, which too often follow Fevers in this country, may also be deemed peculiar.

Typhus is rare in India, but in the course of almost every protracted Fever which terminates fatally in this country, there is a period marked by tremor, or subsultus tendinum, rapid and feeble pulse, low delirium, and the brown sordes over the tongue and the teeth, usually considered typhoid ; which conditions most frequently occur where the early stage of Fever has been neglected, or improperly treated ; but some of these symptoms occasionally appear in the course of Fevers, even under the most skilful employment of remedies.

The Yellow Fever, so justly dreaded in the western hemisphere, is hardly to be accounted an endemic of Bengal ; although we every year meet with some patients in whom an intense yellow suffusion of the skin occurs, in Fevers of considerable severity ; and they are mostly cases in which obscure gastro-enteritis has gradually and insidiously crept on to a dangerous extent, without having been counteracted by adequate depletion. If the cerebral symptoms which attend those cases be not severe ; a prompt and judicious treatment, instituted after the yellowness of the skin, eyes, and urine has appeared, almost always proves successful. But if the cerebral affection, with any tendency to stupor, has existed at an early period, or has taken place to a considerable degree at a later date, in cases where early depletion by

V. S. has been omitted ; very few of these patients can be saved, by the most active and scientific treatment which can be adopted, after the bilious suffusion with much cerebral affection has existed for several days. Jaundice attended with pyrexia occurs here at all seasons of the year, and the deep orange color of the skin and eyes is occasionally met with in every description of Fever.

When the rainy season has commenced prematurely, and there has been an interval of dry oppressive weather about the middle of the rains, or towards their conclusion, I have in some years observed a large proportion of Fevers, unattended by any very violent or dangerous symptoms ; which were nevertheless accompanied with a slighter degree of general yellow suffusion. This symptom has been more frequent in the cases of natives who suffered from Fever on such occasions, than in Europeans. The natives in particular, often had tardy and imperfect convalescence ; and the health was subsequently in many instances much impaired for a long time, marasmus and protracted emaciation being frequent consequences.

Several other observations on the nature of these diseases, must remain to be mentioned when we come to speak of the different descriptions of Fevers on which I propose to offer a few remarks : namely, the Intermittent Fever ; the common Continued Fever of the hot season ; the Remittent Fever of the rains ; and the insidious Congestive Fever of the cold season.

Although I state the season at which these descriptions of disease are respectively most prevalent ; it must be observed that nearly the same modifications of Fever occur occasionally at all seasons, but they are more frequent at the periods specified ; and the varieties of the disease appear to me generally ascribable to the existing season, perhaps in some degree influenced by the state of the weather during the three or four previous months.



INTERMITTENT FEVERS.

Under the head of Intermittents, I comprise those Fevers which consist of a hot stage, preceded by rigor, and ending with perspiration ; this is followed by an intermission, during which the patient is comparatively free from febrile symptoms, and in some cases feels well:—the paroxysm returning with more or less regularity.

It is surprising to observe the degree of labor which was formerly bestowed by men of acknowledged talent, in tracing the changes which occasionally take place in the type of intermittents, or in the hour when the paroxysms commenced or terminated ; while the symptoms indicating the nature and degree of the local affections which occurred, attracted much less of their attention. More recently, practitioners have justly taken a different view of the subject, and direct their observations to the predominant

local affections or irritations*; whereby the treatment of these diseases has become more certain, and the cures much more permanent than they were when the principal reliance was placed in *specifics*, without due attention to the organic changes which were going on in some part of the system. Much benefit has been produced practically, by fixing the attention of medical men, more distinctly on the local excitement or congestion, which for the most part exists in some internal organs in the early stages of intermittent fevers, and by obviating those morbid conditions at a period when they are capable of being completely removed.

The principal points in which it appears to me that the Intermittent Fevers of Bengal, can be deemed to have any peculiar characters, are the great frequency and obstinacy of the visceral diseases, which accompany those forms of fever in this country. There is hardly any organ or part of the body which is not sometimes found affected with disordered function, or permanently diseased in structure, in patients who have been long subject to those paroxysmal Fevers in which there is a frequent return of a cold stage, with more or less regularity in its accessions. In the early stages of Intermittent Fevers, or to speak with more precision, within two or three weeks of their commencement, in persons of robust habit,

* “Two children had ague from worms, which was not in the least relieved by the Bark; but by destroying the worms they were cured.”—*Hunter*.

there is very often disorder of the functions and secretions of the digestive organs, and particularly of the stomach, co-existent with congestion of the brain, and attended in some cases with tolerably distinct evidence of inflammatory condition either in the cerebral membranes, or in the brain itself. I have found Intermittent Fevers connected with these visceral diseases in Bengal, at all seasons of the year, but they occur most frequently in the cold months. The liver also very often shews signs of disorder before patients are much exhausted by the long continuance of Intermittent Fevers : but Hepatic Abscess is rarely the result of the visceral disorder produced by protracted Agues. At remote periods of the disease, in patients exhibiting symptoms of broken constitution, and who at first sight would be pronounced unhealthy-looking persons, the visceral changes of structure which accompany Intermittent Fevers, will be more generally found in the spleen ; which organ often exhibits various combinations of inflammatory and congestive disease, that terminate in induration of the most obstinate character. These phlogoses and congestions of the spleen, are not the exclusive production of long continued disease ; for we find them take place very suddenly in the agues which are brought on by much exposure to rain, fatigue, and poor living ; and which are attended with mental despondency. The mesenteric glands, and cellular structure at the root of the mesentery and mesocolon, are often found more or

less diseased in these protracted and obstinate cases. The lungs are very often the seat of congestions and sub-acute local inflammations, connected with obstinate quotidians and quartans ; and it is a remarkable fact, that I have more frequently met with these affections of the lungs in intermittents during the dry hot season than at any other time of the year ; the disease being the result of sudden vicissitudes of temperature, or of exposure to the showers often attending north-westerns. In those subjects in which indications of diseased lungs had existed during life, and I have had occasion to make post-mortem examinations within such periods that it was probable the visceral disorder co-existent with the ague might be still evident, the lower thin edge of the anterior portion of the lung (and generally of the left lung) was most commonly diseased. I would not be supposed to assert, that local inflammations, or diseases of structure are to be looked on as invariably the concomitants of the Intermittent Fevers of this country ; but I know they are very generally found to be so, by those who examine their patients with accuracy ; and that obstinate intermittents are most easily and most permanently cured by those practitioners who evince the greatest dexterity in detecting the co-existent local disorder, and the greatest skill in removing it. I am quite ready to acknowledge that many incipient intermittents, are connected with mere functional embarrassment, which is very often seated in the mucous surface of

the stomach and intestines ; the indications of the more transient congestion, being in such cases slight and indistinct ; and we occasionally, though rarely, see a regular paroxysmal fever of long duration, in which we cannot detect any evidence of predominant local affection.

Malaria has been generally acknowledged the efficient cause of Intermittent Fevers, and its existence is usually assumed, whenever Intermittent Fevers prevail at low, damp, and unhealthy situations ; but it is abundantly evident to every medical man in Bengal, the very first year that he witnesses the results of the change of season and temperature between the 20th of October and 1st of December, that intermittents are intimately connected with the diurnal changes of temperature, which take place at the commencement of the cold season. At that time the evaporation is infinitely less than it had been for the six weeks previously ; and the frequency of intermittents is augmented beyond all proportion, after the cold nights and foggy mornings commence, and when the heat of the days, though much decreased, is followed by a greater degree of depression of the thermometer during the night than happens at any other season of the year ; as is shown by Chart. 2, at p. 16, vol. I. of this work. The state of the human constitution induced in Bengal by the previous hot-weather and rains, doubtless paves the way for the influence of the commencement of the cold weather, in the production of many diseases which then prevail. To these

causes, and to disorders of internal organs, and principally to a disordered condition of the abdominal viscera, I ascribe the Intermittent Fevers, which occur more frequently in November and December than in all the rest of the year.

The most extended observations substantiate to a certain degree the facts on which the theory of Malaria depends, or the influence of the product of septic decomposition of vegetable matter, in causing Fevers; and we have abundant grounds for acknowledging the influence of exhalation from decomposing vegetable matters as one of the most powerful agents in the production of the Remittent Fevers which prevail at the latter end of the rains, and during the hot and close month of October, which intervenes between the rainy and cold seasons; but for its extensive operation in causing intermittents, the concurrence of cold nights abruptly coming after a previous hot season, seems essential.

It is well known that parts of a camp which are exposed to occasional chilling blasts from the gorge of a mountain pass or ravine, will suffer ten times more from agues, than a similar portion of the same camp, at a lower but more sheltered situation. Many similar facts would oblige us to ascribe the peculiar phenomena of Paroxysmal Fevers, in a considerable degree, to abrupt changes of temperature. A correct opinion as to the usual causes of Intermittent fevers, and of the concurrent visceral lesions, must very much influence the measures deemed requisite to

prevent the disease, as well as the means best adapted to accomplish a speedy and permanent cure.

The above observations on the visceral diseases which accompany Intermittents, refer chiefly to Europeans. In natives of Bengal, of middle age, and moderate firmness of constitution, agues are frequently found to exist for many months with less apparent visceral derangement of structure than takes place in Europeans; but when intermittents are attended with emaciation, and the vigor of the constitution is much reduced, engorgements of the spleen, and at the root of the mesentery, are frequent and obstinate in native patients, generally producing dropsies, which are very often fatal.

To decide on the most proper plan of treatment in Intermittent Fevers, we must pay the strictest attention to the state of the patient's constitution, and ascertain if any visceral disease exist. In recent cases, attended with a loaded tongue, foul breath, anxiety, and any degree of hurried respiration, we shall be able to afford little relief to the patient, until a free exhibition of purgatives, suited to the particular case, has effectually cleared out the bowels, and improved the state of the secretions. For this purpose, the purgatives selected as most proper may be given at the conclusion of the hot stage, and in the intervals of the paroxysms, and these remedies alone will be sufficient in some of the more recent and slight cases to subdue the disease.

At the same time that we are administering purgatives, if the different stages of the paroxysms be severe, and attended with distressing symptoms, affecting either the head, chest, or abdominal viscera; it will be most important that the practitioner make arrangements to be so near his patient, when the cold stage comes on, that he may take some blood from the arm at the commencement of the rigor, or just when the coldness and shivering are completely established. The quantity of blood requisite to be taken from a patient in the cold stage of an intermittent, must be determined by its effects on the rigor; and may be regulated in some degree by the size of the subject, and the existing plethora of his constitution. I know of no rule by which we can estimate exactly how much blood it will be requisite to take from any patient. In general it is sufficient to take 12 or 16 ounces of blood from an European of middle size; in the most robust subjects, I would limit the quantity to be taken at one bleeding during the cold stage, to 20 ounces. In Bengalees I find from four to ten ounces sufficient in general to arrest the paroxysm. I would not advise above 20 ounces of blood to be taken in the cold stage from a European; or 12 ounces from a native, whether Hindoo or Mahomedan; unless there existed some cause independent of ague, to authorize the abstraction of the greater quantity. We must remember that at low marshy stations in the humid atmosphere of Bengal, the abuse of V. S., is liable occasionally to produce the

evils dependent on predominance of the lymphatic temperament: more especially if the blood-letting be employed to excess, or without sufficient cause, in aged persons who have been suffering recently from mental distress, or failure in business.

The benefit of bleeding in the cold stage of Intermittent Fevers is now so well known in India, that I hardly need say that in a great number of cases it arrests the paroxysm, and is the best mode of preventing those ulterior visceral engorgements and indurations, which too often prolong the disease till the constitution is ruined. The patient should be bled in the recumbent posture, and permitted to lie quiet for an hour after the bleeding, and during the paroxysm he should not be heated with too much bed clothes, but may be allowed a blanket in the cold season, or a sheet in the hot weather: he should be supplied with a cup of warm tea, or gruel, or thin sago, soon after the blood has ceased to flow. By these means he will seldom have either a hot or sweating stage, and the majority of patients who have used a sufficient course of mild purgatives before the bleeding, will not have a return of the paroxysm; provided they are tolerably well furnished with clothing, and not exposed to atmospheric vicissitudes.

It is advisable to mix 3 ss. or 3 i. of Aromatic Spirit of Ammonia, with one ounce and a half of tepid water, and to have it ready before opening the vein of an emaciated or weakly person in the cold

stage ; but not one patient in 20 is desirous of any stimulant after the bleeding, they generally prefer a cup of warm tea ; and I think there is an advantage in allowing it. If a patient be much covered with blankets, and supplied with tepid drink in abundance, after the rigor has been checked by V. S., and if a free perspiration be thus kept up for some time, he is much more likely to have a return of the paroxysm.

The requisites to insure the success of bleeding during the rigor are, 1st, the preliminary course of moderate purging—2nd, that the blood be taken from a large orifice, quite as soon as the coldness and rigor are fairly established—3rd, that the patient be bled in the recumbent posture, and no more blood taken than is sufficient to arrest the paroxysm.

As blood-letting during the cold stage of Intermittent fevers, does not always completely remove the existing local affections ; it is requisite to ascertain by the most careful examination, the seat of the predominant inflammation or congestion, and to apply leeches near the part principally affected. The numbers of the leeches, and the frequency of their application, must be regulated by the extent and degree of the local affection. Great numbers of leeches are not often requisite ; from six to 10 should be applied daily to a plethoric adult, in whom general bleeding has been premised, a smaller number every second day may be sufficient for those who are emaciated ; and after some days' employment of the

leeches, it is frequently requisite to apply a blister, and to keep it open for a week.

The patients, in whom those practitioners who have not often tried V. S. in the cold stage, would expect that remedy to be most beneficial, are robust and plethoric persons : these certainly are the subjects who do most require bleeding, and who suffer most if it be omitted ; but they are not the subjects in whom the most brilliant success of the remedy is exemplified. I seldom promise such patients that they shall not have one or more returns of the paroxysm, which may require repeated use of the lancet ; because I know that in a considerable number of plethoric persons, who have had ague only for a short time, there are congestions and phlogoses in several parts of the system ; and when the patient is in the interval of the paroxysm troubled with head-aches, and morbid tenderness on pressing over the belly, or any fulness in the region of the liver, attended with either uneasiness or pain in the chest, we can hardly expect to remove congestions from all those parts by one small bleeding. I have also found that patients in whom the paroxysm of intermittent, but more especially the cold stage, is attended with vomiting, are not quickly cured either by bleeding or by any other remedy ; but they generally derive much benefit from the repeated abstraction of small quantities of blood during the rigors, whereby the paroxysms are almost always mitigated, and the patients ultimately restored to health, princi-

pally by this remedy, and a free use of mild purgatives. Experience shows that there is difficulty in accomplishing a permanent cure of those patients who vomit in the cold fit, and the most part of them derive little or no benefit from quinine.

Although I have above stated, that the most certain and permanent benefit from a single bleeding in the cold fit, may be obtained by premising a sufficient employment of purgatives, it is not necessary that we should allow patients to suffer the distress of repeated paroxysms pending the use of those remedies ; on the contrary, I think it advisable generally to bleed in the first cold fit in which the patient is seen sufficiently early, provided that the paroxysm be severe, and the symptoms of local congestion distinct. It is not with reference to its effects on visceral disorder alone, that V. S. in the cold stage of regular agues is advisable ; but with a view to its checking the existing paroxysm, and preventing the return of another ; for its influence is most remarkable on those natives in whom little local visceral disease is apparent, and these people are in general permanently cured by one small blood-letting judiciously employed.

At the same time that we are almost always obliged to have recourse to purgatives, and often find it advisable to order bleeding in the cold stage of ague ; the sulphate of quinine should be administered in the intervals of the paroxysm, in the dose of from two to four grains to an adult, every two

hours*, for four doses, immediately before the paroxysm is expected. This remedy is of comparatively less efficacy in cases where there is any local inflammation; and when the head is much affected, it is in general improper and injurious.

Those patients who suffer from vomiting during the paroxysm, are better treated at first by a course of mild purgatives; and, if the spleen be not affected, some calomel or blue pill, and compound extract of colocynth are preferable; after several days' persistence in the use of such purgatives, and taking some blood from the arm at the commencement of the rigors, it is in general good practice, to give the patient daily, in the interval of the paroxysms, some decoction of Bark with Salts. My usual formula is,

R. Decoct. Cinchonæ lb. i.

Magnesiae Sulphatis ʒ i.

Tinct. Rhei Comp. ʒ ss. misce. Two ounces are given every three hours, till three stools are procured.

It has been my endeavour to ascertain if there be any circumstances connected with agues, under which we ought to avoid bleeding in the cold stage: I have already stated some descriptions of cases in which the benefit derived from that treatment is neither so immediate nor so complete as under other circum-

* In a few cases I have found it requisite to give four grains of the Sulphate of Quinine every hour for 4 doses, to persons in whom the intensity of the paroxysm, and the distress of the patient during its duration was such, that a fatal termination was apprehended.

stances; and still we could not doubt that V. S. was the most proper treatment we could adopt, as the patients who had vomiting during the rigor, had the paroxysm more alleviated by V. S. than by any other remedy, and were permanently cured by its repetition. I have often felt reluctant to bleed emaciated persons who were reduced by long continuance of the disease; but in many of those, on whom I resolved at last to try the effect of V. S., or rather, in whom I was obliged to employ that remedy when others had failed, the paroxysm has been arrested by the time that four ounces of blood had flowed, and there was no return of the disease; therefore I may say that in all regular intermittents, with cold, hot, and sweating stages, and tolerable uniformity in the hours of accession, the practice of bleeding in the commencement of the cold stage has proved always safe, and generally more successful than any other remedy.

In some seasons, I find blood-letting in the cold stage of regular intermittents arrest the paroxysm and prevent its return in almost every case; while in other seasons 5 or 6 cases occur in succession, in which there is evident and often great benefit from blood-letting in the cold stage, but Quinine is requisite to prevent the return of the paroxysm; and in these same seasons, Quinine fails for a long time in some cases, which are cured by one bleeding from the arm in the cold stage.

It is almost unnecessary for me here to mention the remedies of long established utility in the remo-

val of intermittent fevers, and which have more or less claim to the name of *specifics*, from their direct influence in checking the return of the paroxysm ;—such as Cinchona bark, Arsenic, the Rohena bark of this country, (*Swietenia febrifuga*;) Neem bark, (or the *Melia Azedirachta*;) as well as strong decoction of Chiretta, and of the Goluncha, (*Menispermum cordifolium*;) which latter remedy has been highly praised by Mr. Piddington. The value of these medicines when judiciously administered, is well known ; especially when they are combined with such remedies as are effectual in removing visceral disease, and in improving the state of the patient's health.

Although Emetics are not in general use in the treatment of intermittent fevers in this country, I have administered Ipecacuanha in large doses, with success, in some cases where ague was combined with gastric disorder, and the patients were not very plethoric. Many patients in whom the tongue was much loaded, and the cerebral symptoms were not urgent, derived great benefit from emetics.

In some cases of Intermittent Fever in which quinine has failed to produce any good effect, the paroxysms have ceased in a few days after administering 30 grains of powdered Bark, with ten grains of Rhubarb, and five grains of ginger daily, at six o'clock in the morning ; and repeating the dose at 10 o'clock. In other cases, where Cinchona also has failed, I have seen patients cured by giving ten

grains of the kernel of the Kutkuleja* nut, with four grains of long-pepper, and two grains of asafœtida, in pills, twice a day. This is a very efficacious prescription for natives in whom the disease has existed a long time, and the feet are slightly œdematous, but in whom visceral disease is not apparent. The Liquor Arsenicalis is also very effectual in the slighter cases of Intermittent Fevers of this country, in both Europeans and Natives. After purgatives, I usually advise it for Europeans, in doses of six drops, in an ounce of very weak infusion of Chiretta, which are to be repeated every two hours, for four doses, on the days of interval; and for natives, four drops every two hours, for six doses.

The food of patients suffering from ague unattended with inflammatory symptoms, should be light and nutritious; and after the free use of purgatives, a *small quantity* of wine is in most cases useful for those patients who are much debilitated, and in whom the inflammatory symptoms are entirely subdued. Natives who are affected with intermittent fever, and in whom inflammatory symptoms do not exist, may, when not using purgatives, be advised to eat a small quantity of their usual curries, with rice.

Those who have long suffered from agues at unhealthy stations, are seldom permanently cured without change of residence, which is the more requisite in cases that are complicated with tumid spleen.

* Kutkuleja, or Kutoo Kurunja, is the seed of the *Cæsalpinia Bonducella*.

CASE CXLIH.—John Gregg, *Æt.* 26 ; a stout and muscular man of dark complexion, seven years in India. Admitted into the General Hospital on the 8th of December, 1830, on account of Quotidian Intermittent of three days' duration ; the accession happening at noon. There is now a slight fulness of the left lobe of the liver, attended with a tense state of the left rectus abdominis muscle. He has some thirst, but no pyrexia at present. Bowels regular.

He was ordered to be bled to 3 xx. on the accession of the next cold fit.

R. Extract. Colocynth. Comp. ʒ ss.

Pil. Hydrarg. gr. v.—to be taken at 7 A. M., and repeated at bed time.

Crema Cream of Tartar drink allowed.

December 9th.—The pills have not operated sufficiently. The paroxysm came on at the usual hour yesterday, and 20 ounces of blood were taken from a large orifice as soon as he shivered violently. The rigor ceased in five minutes after the vein was opened, and he had a slighter hot fit than usual.

R. Pulv. Jalap. Comp. ʒ i. at 7 A. M.

Infusion of Senna with Salts at noon.

December 10th.—He was purged freely by the medicine ordered yesterday, and feels well ; has had no return of ague, and is free from pyrexia.

R. Pulv. Rhei ʒ i. Pulv. Cinchonæ ʒ i. misce.

To be taken daily at 8 A. M., and repeated at noon.

December 14th.—He continued well, and is discharged this day.

CASE CXLIV.—W. Murray, Æt. 21; a tall and rather stout man, of light complexion, 9 years in India, was attacked with Intermittent Fever on the 1st of July, 1830; the paroxysm returning every second day at about 11 o'clock. He was freely purged by compound powder of jalap; and on the 7th of July, he was bled to 14 ounces at the commencement of the rigor of the fourth paroxysm, by which the shivering was arrested in less than six minutes. He had a very slight feverishness in the afternoon, but no sweating. Some mild purgative, either of Colocynth and Blue Pill, or of Pil. Rhei Comp. was taken daily.

On the morning of the 13th of July, a shivering fit of great violence took place at $\frac{1}{2}$ past 7 in the morning; after a restless night, during which he suffered much pain in the liver, and some head-ache. The arm was tied up and 20 ounces of blood were taken from a free orifice, while he was shivering vehemently. The rigor ceased while the blood was flowing, and no hot or sweating stage took place: he had no return of the disease. I have chosen this case from a number, because the patient was a prisoner in the Great Jail, where his conduct was known; and, because he recovered without any change of residence or habits. The cure of Hospital patients being much aided by change of residence, improved food, and living in a better house than is usually the lot of such persons at home; the effects of remedies are not so unequivocal in them, as in cases where there has been no change of residence.

CASE CXLV.—Jas. Hendy, *Æt.* 16 ; a tall and delicate lad, who had never been out of Bengal ; was seized with shivering at 4 P. M., on the 12th of January, 1832, and the cold fit remained about $2\frac{1}{2}$ hours ; it was followed by heat of skin and headache, which lasted till past midnight. A perspiration took place towards day-light, and he got up on the 13th tolerably well ; but had a troublesome short cough all day, and the forehead was hot ; but he ate his usual food.

The rigor returned with much severity at four P. M. on the 13th, 14th and 15th ;—and the hot stage became more intense each day. Still as he suffered little during the forenoons, except from cough, and was tolerably cheerful ; the only medicine given was one dose of castor oil on the 14th ; and some paregoric in the evenings, after the cold fit commenced.

On the 16th of January, there was an entire loss of appetite, he felt weak all day, and appeared so lank and ghastly, that he was considered seriously ill. I was then sent for, and saw him at 4 P. M. He was pale and his features were shrunk, he had a frequent slight cough, his pulse was 116 and feeble, the nails were blue, the hands cold, and a slight shivering had commenced. The tongue was moist and coated with grey mucus in the centre. His spleen was slightly enlarged. As soon as the rigor increased, I opened a vein, and took five ounces of blood from the arm ; and gave him at the same time 3 ss. of Spirit. Ammoniae Aromat. in a wine glass of tepid

water. The rigor ceased while the blood was flowing; he had very slight pyrexia in the evening, and slept better than usual at night. The relief from the V. S. was remarkable and immediate; he had no return of the ague after being bled, and the cough was almost entirely subdued.

On the 17th of January, he appeared in every respect better, and took a dose of castor oil, which purged him freely. On the 18th, he had a dose of compound powder of jalap, and four leeches were applied over the region of the spleen. The Spleen Mixture was administered daily for a fortnight, and he recovered good health.

CASE CXLVI.—A lady, aged 32, of small stature, and active habits, many years in India; was attacked with Tertian Intermittent, on the 2nd of November, 1830. The rigors were most vehement and distressing, being attended with head-ache and pains in the loins; the hot stage was long and severe. I was called to see her on the 4th of November, when she was in the hot fit of the 2nd paroxysm; the pyrexia was then very high. In the interval after this, she took an active purgative, and I intended to have bled her at the next cold fit, but was prevented from arriving until the rigor was over. She suffered a most intense paroxysm, after which the purgative was repeated, and I took care to be present at the commencement of the 4th paroxysm, which began just as violently as the former. When she was shivering most vehemently, and though

covered with several blankets, calling aloud for more bed-cloths, I tied up the arm, and made a free orifice in the vein. Thirteen ounces of blood flowed quickly, and the relief was almost instantaneous; the rigor ceased, and she had the bed clothes removed, except one blanket. Neither hot nor sweating stage followed, and she had no return of the disease. No medicine was requisite after the bleeding, except a few mild aperients of Blue Pill, and Compound Extract of Colocynth.

CASE CXLVII.—Mrs. Stuart, rather a fat woman, of light complexion, 10 years in India, came under my care on the 28th of December, 1829, having a Quotidian ague of five weeks' duration; the rigors were exceedingly severe, the head was affected with giddiness; and she had a tumid spleen. She had been very judiciously treated with purgatives, Quinine, and leeches to the head. When the rigor, on the 28th of December was fully formed, I bled her to 14 ounces. The rigors ceased in $6\frac{1}{2}$ minutes; she had afterwards slight fever for rather more than an hour, and no sweating stage. Purgatives were administered, and leeches applied twice, to the region of the spleen. She had no return of ague after the V. S., and remains well.

CASE CXLVIII.—Mongul Khan, a tall and thin Mahommedan, 32 years of age, who had been for two months a prisoner in the Great Jail, was attacked with Intermittent Fever on the 12th of October, 1831; his tongue was white and moist, and there

was slight redness of the eyes, but he was a healthy looking man, and no visceral disease was evident. His principal complaint was of head-ache, and pain in the loins during the cold stage.

A dose of compound powder of jalap was given early on the morning of the 13th, and 5 grains of blue pill with as much compound extract of colocynth, every night at bed time, by which a moderate purgative effect was kept up: but his complaints were not alleviated, and the ague returned daily at about 10 o'clock A. M. When the fourth paroxysm commenced on the 15th of October, and he was shivering much, he was bled from the arm; the effect of which was almost immediate: the orifice being very free, six ounces of blood were quickly obtained, and the shivering ceased in less than four minutes after the vein was opened; he had neither hot, nor sweating stage, and no return of the disease afterwards. No other remedies were given; and as he remained in the jail, we know that his cure was permanent.

CASE CXLIX.—Ramdhun, a Hindoo, aged about 34, a firm and muscular man, generally healthy, was exposed to the sun for several hours while fishing on the 30th of July, 1831; and on the next day he was attacked with high fever and severe head-ache, for which he took the usual native remedies, consisting of a few mild aperients; and he strictly avoided all food, but he derived no benefit from that treatment. He had a severe fit of shivering for one hour and 35 minutes, every 2nd morning at 5 A. M.,

the rigor being followed by great heat of skin, intense head-ache, and pain in the loins. The pulse was rapid and not very strong, and he suffered much during the paroxysm, from anxiety and extreme thirst. The morbid heat of the body remained during the intervals of the rigors, except for about half an hour at 5 P. M. daily, when a slight degree of coldness took place round the knees and inside the thighs ; but at the same time his face, head, chest, hands and feet continued hot. One of this man's relations, who is remarkably clever and well informed on medical subjects, and who had heretofore treated him, gave me the above history of the case, when I was first called to see him, on the 7th of August. The patient was then complaining of extreme thirst, with distressing anxiety, and a dry heat of the skin ; his pulse was 132 and rather weak, and there was a slight degree of redness of the eyes ; the belly was rather tense. The paroxysms had been so uniformly aggravated on each return of the rigors, that his friends were apprehensive of a fatal termination during the paroxysm which was expected on the following morning. His bowels had not been moved this day, therefore he was made to take immediately, 10 grains of calomel with 4 grains of compound extract of colocynth, and one grain of camboge ; which operated powerfully in the afternoon, and arrangements were made to take blood from the arm on the recurrence of the cold stage.

On the 8th of August the coldness came on as usual at about $\frac{1}{2}$ past 5 A. M., and the shivering was most vehement, attended with extreme anxiety. When the rigor was completely established, a large orifice was made in a vein, and as soon as $5\frac{1}{2}$ ounces of blood had flowed, which was in little more than three minutes, the rigor ceased abruptly. At 8 A. M. he took a dose of infusion of senna with salts, which operated seven times, and he remained cool all day : but there was no perspiration on the skin, and his pulse was 128, but soft. In the afternoon he was ordered to take every hour, a table spoonful of a solution of 2 grains of Tartar Emetic in one pint of water. On the 9th of August he was much better in every respect, there was a slight moisture on the skin, and all febrile symptoms had abated. This man had not the slightest return of cold shivering, nor any bad symptom after the bleeding. Some Quinine was given daily in the forenoon ; and Colocynth with Calomel, at bed-time, to keep his bowels free. On the 15th of August, he had no complaint, except some slight remains of debility : and his health has remained good ever since. His friends acknowledged that his life was saved by the bleeding, to which they were not at first willing to let him submit, had they not considered the danger extreme. They looked on his case as one of that severe description of Fever, which they denominate *Biggar*, as it differed from the usual course of that fever, only in the very distressing

rigor which had returned every 2nd day prior to the venesection.

CASE CL.—Mich. Murphy, *Æt.* 40; a stout and muscular man of dark complexion, seven years in Bengal. Had a severe paroxysm of Intermittent Fever, on the 14th of July, 1831; the rigors lasted nearly two hours. The paroxysm returned with equal violence about 8 A. M., on the 15th; and when I saw him at noon, the hot stage was near its conclusion; the belly was rather tumid, but soft and elastic; he was ordered to take

Extract. Colocynth. Comp.

Calomel. āā ʒ ss. in pills, at 2 P. M.

July 16th.—The pills operated twice; he was affected with much lassitude and yawning, during the forenoon; and the rigor commenced at 1 P. M., attended with severe head-ache. As soon as he was quite cold and shivering vehemently, 20 ounces of blood were taken from a free orifice. The rigors decreased while the blood was flowing, and ceased altogether in ten minutes from the time of beginning to tie up the arm. The head-ache was greatly alleviated by the bleeding. He had no stool this day, therefore an Enema was administered two hours after the rigor ceased; and he took a drachm of compound powder of Jalap.

July 17th.—He has been purged seven times. The blood taken yesterday, is not cupped, but it has a peculiar appearance; a soft bluish coat having form-

ed above the cruor: the serum does not differ from that of a healthy person.

R. Extract. Colocynth. Comp. ʒ ss.

Pil. Hydrarg. gr. v.—to be taken at 6 A. M.

The paroxysm returned at 9 o'clock this morning, and he was bled to 12 ounces. The rigor ceased sooner than yesterday. About two hours after the bleeding, he was seized with vomiting and severe pain at the scrobiculus cordis, attended with great anxiety; therefore he applied eight leeches to the epigastrium, which relieved the pain, but he afterwards became very languid. A profuse perspiration took place, and continued all the afternoon; the pulse became rapid and small, and the countenance sunk and ghastly, as in Cholera; and he felt an inclination to vomit. I saw him in that state at 5 P. M. and ordered ten grains of calomel, with one grain of opium, in a pill; and three ounces of wine with sago.

At half-past 10 P. M. he had recovered from the symptoms threatening Cholera, and had one free stool; he took two grains of Quinine in solution.

July 19th.—He was affected with slight rigor at noon, which did not last ten minutes, and was followed by very little pyrexia: he again took two grains of Quinine in solution, and had no other return of ague. Mild purgatives were used daily, and he was pronounced well on the 1st of August, 1831. It is worthy of remark, that a few cases of Cholera took place in the vicinity, at the time that this patient evin-

ced a tendency to the low form of Cholera with collapse, on the 17th of July. The leeches were applied without my knowledge, at the sweating stage of the paroxysm, when depletion of any sort is injudicious ; and at that moment I believe, a small quantity of opium, and some sago with brandy or wine, would in this particular case, have been much more proper.

Very free depletion by blood-letting, is not in general well borne by those persons who have been for a long period exposed to fatigue, privations, and atmospheric vicissitudes, in unhealthy situations, whereby their constitutions have suffered much ; more especially if the individual have been long affected by mental anxiety and despondency. Under these circumstances, we often find the progress of disease so slow and insidious, that the persons affected continue their usual occupations, and if they be soldiers, they do not relinquish their military duties and ordinary habits ; the apparent disorder not being great, though pyrexia creeps on gradually for two or sometimes three weeks, attended with some degree of mental torpor, indisposition to business, and a slight dull pain in the forehead. In these cases, it has appeared to me that wherever the local affection may exist, effusion from the vessels of the part is apt to take place without any great degree of morbid vascular action, and although such effusions be not of great extent, and (if not seated in vital organs,) not liable quickly to produce a fatal

termination, they greatly embarrass the treatment, and often give rise to protracted disease, the cure of which is found most difficult. Should febrile affections of this obscure sort occur in Bengal just before the cold northerly winds set in, and when the great diurnal vicissitudes of temperature are established, the subjects of such disorder will be very liable to suffer from Intermittent Fever. In such cases very free use of the lancet should be avoided; and if under these circumstances blood-letting be employed in the cold stage, I should advise caution in the extent to which that remedy is used.

Some patients whose health has been gradually much impaired from long residence at unhealthy stations, are affected with indistinct paroxysms, of what is called by soldiers the Dead Ague, or Dumb Ague; in which, instead of rigor, the disease commences with much anxiety and oppression of respiration, and sometimes the face becomes livid. A hot fit follows, in some cases slight, in others of great intensity, and there is seldom a free perspiration afterwards. There is in general great prostration of strength in these cases, and the patients sometimes die in the stage of oppression, but they more frequently expire soon after the hot stage commences. These cases do not bear active purgatives or much loss of blood. They are best treated by resinous purgatives and blue pill in the intervals of the paroxysms, and a small bleeding from the arm in the hot stage; while

frequent administration of very small quantities of diffusible stimuli, and frictions of the extremities with hot flannel are sometimes of service in the state of oppression. In these cases it is of the utmost importance to anticipate and to prevent the return of the paroxysm by ordering Quinine in the dose of 8 grains, at four hours before the expected paroxysm, and repeating the dose in two hours; besides which, smaller doses may be given in the interval.

When an army is employed on active service, in an unhealthy climate; agues must frequently happen among men whose health has been previously so much impaired by the slow course of disease above described, that blood-letting is a doubtful remedy: consequently we may sometimes meet a number of patients labouring under irregular Intermittent Fever, complicated with a description of constitutional disorder, which renders that remedy as inappropriate for the majority of those cases; as it is excellent and efficacious, in the treatment of Intermittents in general. These observations will, I trust, be sufficient to guard against the indiscriminate use of the best remedy we possess in Intermittent Fevers.

There are two sources from which I am apprehensive that Dr. Mackintosh's excellent plan of bleeding in the cold stage, may be brought into disrepute; 1st, from the operation being trusted to careless assistants, who do not bleed the patient at the proper moment, namely, the *commencement of the rigor*;— 2nd, from a much larger quantity of blood being

taken, than is requisite to produce a beneficial effect ; therefore I have limited the quantity which it is advisable to take at one time.

It will be sufficiently evident from the foregoing pages, that I do not propose any exclusive practice, neither do I advise the employment of blood-letting in the cold stage of Intermittents without due consideration of the nature of the disease and condition of the patient. Careful observation of the intermittent fevers of this country for many years, has convinced me that no single remedy can be exclusively employed with advantage, and although purgatives, and quinine, and mercury, are each under particular circumstances requisite ; there are many cases in which those remedies cannot be prescribed with benefit. We find that when Intermittent Fever is complicated with cerebral affection, or with gastro-enteritis and a dry tongue, Quinine cannot be used as our principal remedy, in fact it can seldom be administered without injury until the local affection of the brain is subdued. When gastric irritability and inflammation are predominant, active purgatives as well as Quinine must be employed with caution, as long as the topical disorder exists in a considerable degree ; and in those cases complicated with splenic cachexia, we can seldom administer much mercury without decidedly and permanently injuring the patient's constitution, as may be seen by reference to Vol. I. page 452 of this work.

A remarkable fact may be here noticed, namely, that the employment of blood-letting during the cold stage of Intermittent Fevers, is occasionally though rarely followed by continued fever. Any circumstance which breaks the regular recurrence of the paroxysms, is now and then seen to have the same effect, which was not surprising when the remedies used to interrupt the regular succession of the paroxysms were of the class of stimulants. It is well known that about 27 years ago, Intermittent Fevers of the Quartan type were common in Great Britain, and usually proved very obstinate and intractable. It was then a common practice to treat those fevers by administering from 3 ij. to 3 iv. of Theriaca Andromachi, in warm port wine, at the accession of the first symptoms of a paroxysm; the effect of which was very generally to break the regularity of the intermittent, and frequently to substitute a continued fever in its place; after the cure of which, by ordinary antiphlogistic treatment, the patient remained well. This mode of treatment, viz. the practice then common, of arresting a paroxysm by the exhibition of stimulants, may account for the remark which was so often made, that the ordinary result of protracted ague, was an impaired constitution, though that disease is in general unattended with danger* during

* Although Intermittent Fevers do not frequently destroy life, they are very often accompanied or followed by dropsies and organic affections of the most intractable description; the victims of which may be seen every day in this country, and these sequelæ of Intermittent Fever are very often fatal.

the continuance of the paroxysms ; while a patient who had suffered a severe continued fever, during which he had been for a time in a state of extreme danger, often rose from his bed of sickness to enjoy a better state of health, than for a long time before.

It appears to me that V. S. in the cold stage of Intermittent Fevers deserves to be classed among the best remedies which we possess for the effectual cure of many of the most obstinate cases of those diseases in Europeans. It is not so often necessary for the cure of native patients, because in them the local affections are in general slighter in degree, and more limited in extent than in Europeans.

It would be desirable, if possible, to ascertain with precision, in what cases of Intermittent Fever, blood-letting in the cold stage is indispensable. Even if we restrict the employment of this remedy to those cases in which quinine fails to prevent the return of the paroxysm ; and in which there is distinct evidence of some local inflammation, the symptoms of which are evident, not only during the existence of the paroxysm, but at the intermission ; we will have reason to acknowledge that blood-letting at the commencement of the rigor, is a remedy of great efficacy in the *cure* of Intermittent Fevers. If we go a step further, and employ the same remedy in those cases in which some remarkable congestion is evident during the paroxysm, or some very severe symptoms occur then, such as extreme oppression at the chest, severe pain in the loins, or head-ache and giddiness ; we shall in

the course of our practice have the satisfaction of finding, not only that we relieve a symptom which was very distressing at the time of the paroxysm, but the paroxysm itself will be so often arrested at once, and its return prevented by the V. S., that we shall gradually derive increased confidence from the success of the treatment. We shall also find that blood-letting in the cold stage is not only often a requisite remedy to remove or *cure* local congestions, but that it is of great importance for the purpose of *preventing* those more permanent organic changes which often follow the frequent return of the paroxysms. For the purpose of obviating the consequences of repeated returns of the disease, we possess two most powerful remedies in the lancet and quinine. The utility of blood-letting in small quantity, and frequently repeated by leeches, for the purpose of removing sub-acute and chronic local diseases, need not be again urged here.

CONTINUED FEVER.

The continued fever of the dry hot season in Bengal, is generally marked by the abruptness of its attack, and the violence of its symptoms. Morbid heat of the skin, increased frequency with fulness of pulse, ardent thirst, and head-ache, are among the most prominent symptoms; there is sudden prostration of strength, and in some cases a degree of stupor. The disease is sometimes ushered in by rigor, and occa-

sionally the attack commences with violent and long-continued vomiting of green bile. The symptoms vary a little in different individuals, according to the organ principally affected. In some cases in which there is much determination to the head, the patients seem overpowered and oppressed by the local affection; they suffer from a degree of indifference approaching to stupor; the pulse is neither very full nor hard, but there is much heat of skin, especially of the forehead. When the stomach is most affected at an early period, there is nausea and vomiting, and in some of these cases the tongue is much loaded with yellowish mucus or brown fur; and in other cases though less loaded, it is dry, pointed, and red at the tip. Local inflammations are manifested very early: the organs principally affected are the brain, the stomach, the cellular structure around the duodenum, and at the root of the mesentery, and the liver. The progress of this disease, if left without treatment, is usually rapid, and the termination fatal. The patient is distressed by restless nights, and after some time delirium ferox takes place, which is followed by stupor that ends in death. In this disease the heat is almost always uniform, and until a very late stage of protracted cases, it is above the standard of health. Many of the cases of this disease, which are not promptly and decidedly treated by V.S. at an early period, terminate fatally within 36 hours, and the stupor is often so great, that the patient is said to die apoplectic.

On dissection of those subjects in which death has taken place early, we find congestion of blood to an extreme degree in the brain, and in the abdominal viscera. The lungs are often found gorged with black blood, and effusions of blood in the brain from rupture of the over-distended vessels are sometimes found. More or less local inflammation is also found in the organs above-mentioned; and if the disease have continued for two or three days in its more violent degree, and sufficiently active treatment has not been employed, effusions of a sero-albuminous description are often found to have taken place to a great extent, in and upon the surface of the viscera principally affected.

The usual causes of this fever are, exposure to the sun, violent exercise in the hot season, bathing when heated, constipation of the bowels, and excessive use of wine or spirits. There is a remarkable tendency to this form of fever, in plethoric Europeans who have recently arrived in India.

The objects which we have in view in the treatment of the continued fever of Bengal, in the hot season, (or indeed at any season,) are clear and well-defined; the means which are requisite to be employed are simple, and they should be used with precision. All trivial and superfluous remedies should be avoided, as they tend only to confuse the practitioner, and annoy the patient.

Blood-letting is the most important and most efficient remedy which we possess in this Fever, and if

employed early, it not only immediately arrests the most dangerous symptoms, but it prevents embarrassment in the future treatment, and renders other remedies more effectual and certain.

European patients, of middle stature and unimpaired stamina, suffering from a severe attack, especially if they have recently arrived in India, should be bled to lb. iss., or lb. ii., as soon as possible. The blood-letting should be performed when the patient is in the recumbent posture. Twelve grains of Calomel, and as much Compound Extract of Colocynth, should be given soon after the bleeding; and followed by infusion of Senna with Salts in six hours. If there be much thirst, with any degree of dryness of the tongue, two grains of Tartarized Antimony are to be dissolved in a pint of water, and a table-spoonful of the mixture (half an ounce,) given regularly every hour, and not much other drink. The solution of Tartar Emetic if used after the bowels have been effectually cleared out, may be estimated as next in efficacy to the lancet. Its effects in assisting to subdue the morbid action of the heart and arteries, in moderating the febrile heat of skin, and in allaying thirst, as well as in restoring an equable warm perspiration, are more valuable and more certain in continued fever than the effects of any other article of the materia medica. In four hours after the first bleeding, if fever continue, the vein is to be opened again, and blood taken to the extent of 8, 12, or 20 ounces, for the purpose of subduing the morbid

arterial action, and reducing the fever. In eight hours more, if the symptoms be not much abated, a third bleeding should be ordered ; but if pyrexia be moderated, while only head-ache, or morbid heat of the forehead continue, leeches are to be applied to the temples.

It is impossible to say, how often the repetition of V. S. or leeches may be requisite in particular cases ; the desiderata are, effectually and permanently to subdue the morbid action of the heart and arteries, and to remove the local inflammation that exists and keeps up the fever ; and until these objects are accomplished, we must not deviate from a decided antiphlogistic treatment. At late periods of the disease, discretion is requisite, lest we use such repeated depletion by V. S. and leeches as may be injurious. According as the disease is more advanced, and after our antiphlogistic remedies have been frequently repeated, we must be more reserved in the abstraction of blood ; and even leeches, when requisite, should be applied, in small numbers.

In all violent attacks of this Fever, the head ought to be shaved at the time that the earliest treatment is commenced : in slighter cases, where there is at first reason to hope that the fever may be easily subdued, we may omit shaving the head ; but whenever the fever continues for several days, even in a slight degree, and is attended with any heat of the forehead, or any acute cerebral affection ; it will be found requisite to shave the head, and to repeat the leeches according to the nature of the symptoms.

Purgatives must be repeated so as to procure not less than four free evacuations daily ; and we may be sure that there is need of persistance in mild purgatives, until fulness and tension at the epigastrium, and morbid heat of the belly are removed. As long as so much arterial action and heat of skin exist, as to render blood-letting from the arm requisite ; saline purgatives with Senna had in general better be used in the mornings, and Calomel or Blue Pill at night ; because the vascular system is more effectually drained by saline purgatives which produce copious stools. In plethoric subjects, we usually derive benefit from the daily use of some purgative, so long as fulness at the epigastrium remains, and the evacuations are feculent ; but if we find the evacuations become watery, and that their frequency induces local irritation, or is followed by prostration instead of relief to the patient, we must suspend the farther use of cathartics for a time. At later periods of the disease, when morbid arterial impetus is subdued, and plethora no longer exists ; but the pyrexia though moderated, seems to be kept up by local congestions, with interstitial effusions, the result of inflammation, it is desirable to change the purgative, and to give 10 grains of Blue Pill, with six grains of Compound Extract of Colocynth at bed-time ; a quarter of a grain of Tartar Emetic may be added to the above pills, when the patient's stomach will bear it : at the same time we should give from six to 12 grains of Blue Pill early in the morning, and repeat the dose at noon.

Should the bowels not be now sufficiently free, a purgative enema may be administered once a day.

During the early part of the treatment above described, tranquillity and total abstinence from food are to be enjoined; and there is no advantage in making persons suffering from fever drink large quantities of fluid. The patient should remain in the recumbent posture, with the head and shoulders as much raised as may be comfortable. A cup of tea or some soda water may be allowed twice a day, and if there be much thirst, a small wine-glass full of cold water may be drank occasionally. Besides which, after the second day, a coffee-cup full of thin sago should be taken twice or 3 times in 24 hours.

This is the treatment which is most successful in the severe cases of the ardent fever of Bengal in the hot season. It is at the same time necessary to state, that the practitioner is much more likely to be embarrassed by those cases which being slight at first, gradually and insidiously make a silent progress without any very urgent symptoms; so that there appears to be an excuse for omitting active treatment for several days; these are the cases which are found in their latter stages to be utterly intractable. Therefore, I urgently claim the attention of those who are inclined to allow a slight fever to go on for several days, and even slowly to increase, without arresting the impending mischief. At an early period of these slight cases, depletion by the abstraction of compara-

tively a small quantity of blood, will effectually subdue the disease.

Cases sometimes occur, in which the cerebral symptoms and oppression at the præcordia, are not alleviated by the first or second bleeding and active purgative, (although the morbid heat and violence of the arterial action are in a great degree subdued,) and at the same time there is much lowness and a rapid pulse, affording reason to fear that extensive effusion may have already taken place from the minute vessels of important organs, especially in the brain, which will very soon destroy life. If the symptoms of debility have come on suddenly, after the free action of purgatives, whereby the fulness at the epigastrium has been lowered, it is sometimes justifiable to suspend the administration of active remedies for a few hours, to let the patient have a small cup of gruel and to give a table-spoonful of camphor mixture every hour; in hopes of a beneficial effect from the remedies already taken. But in general, the means most likely to succeed, are, a very cautious repetition of topical blood-letting, regulated by the strength of the patient and the nature of the symptoms; and perseverance in a mercurial treatment, such as six or 12 grains of Blue Pill, three times a day; besides which, in cases where there is reason to believe that effusion is taking place in vital organs, it will be advisable to give 20 grains of Calomel at bed-time; and if there be a watery purging and much exhaustion, one grain of opium may be added, should the cerebral affections not be of

a character to forbid it. The symptoms which prohibit the use of opium, are, heat of the forehead greater than natural, and a loaded dry tongue. Calomel and Blue Pill must be repeated daily in smaller doses, until salivation takes place, and then we can afford no more assistance of an active description; our best remedies have been pushed on until they can be no longer continued with benefit. What remains to be done, is merely to prevent constipation of the bowels, and to supply the patient with tea, and as much thin gruel as is sufficient for a fever patient to live on, which is about half a pint in the twenty-four hours. At the same time, we must pay great attention to the changes which take place. If the evacuations be too profuse, a little wine may be added to the gruel, twice a day, or oftener; and perhaps six grains of Blue Pill, with half a grain of opium, may be requisite to moderate the purging. It is not less important, to attend to any rising of the pulse, and symptoms of local inflammation, which at very remote periods sometimes require to be subdued by the timely application of a few leeches. If even an incomplete remission now take place, the tongue being moist and not much loaded, and especially if the extremities and forehead be found in a state of perspiration, a few small doses of Quinine may be administered with benefit: and in those cases in which we may be obliged again to adopt active antiphlogistic measures, depletion acts more favorably after some Quinine has been taken during the remission.

There is another condition of Fever, in which the efficacy of a large dose of Calomel is admirable ; and that is in cases where from the disease at first appearing to be slight, the cure has been attempted by active and repeated purgatives, preceded by one moderate bleeding, or where the lancet has not been used even once. The patient after being purged for several days, is weak and anxious, he has low febrile symptoms with but little morbid heat of skin, and is passing nothing by stool but a brown water. A scruple of Calomel, with a grain or two of Opium at bed-time, often entirely alters the character of such a case ; next morning we find that the patient has slept, is cheerful, and has a moderate warm perspiration, with a tranquil pulse ; and the stools are feculent : he then requires very little more medicine except half an ounce of Castor Oil, or a small dose of Jalap, or a purgative enema once a day, and half of the above dose of Calomel and Opium at bed-time for one night more ; keeping the bowels free, and taking very little food for ten days.

It sometimes happens that those who have been freely bled from the arm once, at an early stage of this fever, and have had leeches in the same day to the head, or over the region of the stomach, whereby the morbid force of arterial action is much moderated, still have some remaining pyrexia ; and we find that the patient after a restless night, has (early in the morning,) a rapid but not a very strong pulse ; and there is morbid heat of the whole surface of the

body, but it is most remarkable about the head and neck. There is great anxiety, and the patient asks in a hurried manner half a dozen questions, without waiting for an answer. These symptoms are often quickly and completely relieved by the cold affusion. If the sick man be made to sit on the floor, supported by a servant, while two buckets of cold water are steadily poured over the head and body, and he is quickly wiped dry, and placed in bed; he very often becomes convalescent, without any other remedy except mild aperients, and a few doses of Quinine, which may be commenced soon after the pyrexia has ceased. If the morbid heat return, the cold affusion must be repeated, and this is sometimes requisite at the end of one or two hours. It is in the early stage of fever, and after blood-letting, that we find the cold affusion a most admirable resource. It should be reserved for the purpose of subduing the inordinate frequency of the pulse and morbid heat that may remain after V. S., and before effusion has taken place in vital organs; for after that has occurred, we cannot expect the affusion of cold water to prove beneficial, but it may do much harm, and increase interstitial deposit, which at an earlier period it might have prevented, by arresting morbid arterial action, and subduing febrile heat: for it is by these means it aids the effects of blood-letting. When effusions have taken place, or when the effects of mercury prevent us from ordering the cold affusion, and especially at the remote stages of fever, tepid affusion, or spong-

ing the body with warm water, may frequently be of some service.

CASE CLI.—Bertrand Meillan, *Æt.* 27; a French sailor of the ship *Bordelais*, recently arrived in Bengal; a muscular man of middle stature. Was admitted into the General Hospital at 6 o'clock A. M. on the 10th of July, 1834: he had then been ill for four days with continued fever, not preceded by rigor, for which he had taken some mild aperients, and purgative enemata, and leeches had been applied to the epigastrium. On admission, he had the symptoms of ardent pyrexia strongly marked: there was much morbid heat of skin, a hot forehead, and frequent pulse; the face was flushed, and the eyes were slightly blood-shot, he complained most of pain in the loins. The tongue was moist and not much loaded.

Twenty ounces of blood were taken from the arm from a large orifice; his head was shaved, and ten grains of Calomel were administered.

11 o'clock A. M.—He is somewhat cooler, but the pulse is still frequent and strong; he has had one stool, and is now anxious, restless, and thirsty. The blood drawn in the morning is buffy and cupped. The same orifice of the vein was again opened, and 12 ounces of blood allowed to flow; which very much moderated the frequency and force of the pulse, and was immediately followed by a free perspiration on the chest and forehead.

R. Pulv. Jalap. Comp. 3 ss.

2 o'clock P. M.—Slight head-ache remains, with some morbid heat of the forehead, and there is a flush on the cheeks; the eyes are still blood-shot.

Apply eight leeches to the temples.

R. Antimon. Tart. gr. ij.—Aquæ lb. j. misce.

One ounce to be drank every hour.

Vesper.—He is tranquil, and in every respect much better; purged freely twice.

R. Pil. Hydrarg. gr. xij. ℥. s.

July 11th.—He slept tolerably well, and is now cool and quiet; the flush of the cheeks has nearly subsided, and he is cheerful.

The body to be sponged with tepid water.

Two grains of Sulphate of Quinine in solution, were ordered at six o'clock A. M., and repeated at noon.

Extract. Colocynth. Comp.

Pil. Hydrarg. āā gr. vi. in two pills at 10 o'clock A. M.

Vesper.—Pyrexia subdued, and he is cool and perspiring.

R. Pil. Hydrarg. gr. xii. ℥. s.

Enema Purg. statim.

July 12th.—He is free from fever, has slept, and says he is well.

Pills and Sulphate of Quinine repeated as yesterday.

Up to this date, tea only has been allowed. He is now ordered to have in addition, some sago and milk.

July 13th.—The same treatment was repeated; some bread and milk were allowed. He was discharged at his own request on the 15th, to join his ship.

CASE CLII.—On the 16th of April, 1832, I was requested to visit a gentleman who had been several days ill. He was then suffering from ardent fever; there was much morbid heat of the surface of the body and extremities, the face was flushed, the eyes were blood-shot, the pulse frequent and strong, the tongue was loaded with yellowish mucus, and the whole surface of the skin, as well as the eyes, deeply jaundiced. The epigastrium was hard and full, the muscles of the belly were tense, and the urine was of a deep orange color; pressure over the hypochondria and epigastrium caused much uneasiness, but not acute pain. He had a constant sense of noise in the ears, and giddiness of the head, attended with much anxiety and restlessness; and much pain in the loins.

On inquiry as to the origin and course of his complaints, he said that during active exercise, he had been exposed to a sudden storm of rain, seven days previously; in consequence of which, extreme pain in the loins, and lassitude came on in the course of 12 hours, and gradually increased to the most intolerable degree, accompanied by fever and sense of debility, which had been gradually increasing. For these symptoms, he had been advised to rub a liniment to the back, and had been directed to take some Calomel pills every night, and a dose of senna and salts every morning; which treatment had been followed for a week, with the effect of purging him several times every day; and for the purpose of removing the debility, he had been directed to take

some broth, and to drink a tumbler of claret and water daily. Under this treatment he had become worse, the anxiety and feverish heat had gradually increased ; for the first two nights of his illness, he had been uneasy, and slept little ; but for the last five days and nights, he declared that he had no rest, a constant noise in the head having distressed him, and there had been during the greater part of that period so much giddiness, vertigo, and sense of debility, that he required assistance to get from his couch to the close-stool ; and after being purged, or even when raised to the erect posture, he felt faint, sick, and giddy. The mouth is now affected by mercury.

From this detail, it was evident that inflammation and congestion had already arrived at a fearful extent ; interstitial deposit had probably taken place largely at the root of the mesentery and mesocolon, and in the cellular structure around the duodenum, extending from thence down by the sides of the bodies of the lumbar vertebræ ; and I presume congestion of blood in the liver was terminating in effusion. The symptoms also indicated the utmost degree of vascular engorgement in the brain, combined with morbid arterial impetus. The state of disease which caused the symptoms above detailed, and the febrile anguish and anxiety, demanded effectual and prompt relief. Nothing but the boldest and most decided depletion could retrieve a case so nearly lost by the long course of unrestrained disease. There was sufficient proof that Calomel, and purging, and nourish-

ment, had done nothing towards relieving any of the symptoms.

A vein was immediately opened (at 7 o'clock, A. M.,) and lb. ii. of blood taken from a large orifice. The utmost tranquillity was enjoined, only half a wine-glassful of cold water was allowed every hour; and the following medicines were ordered:

R. Ext. Colocynth. Comp.—Pil. Rhei Comp. āā 3ss.
Antimon. Tart. gr. i.—misce et divide in pil. x.
Two pills to be taken at 7 A. M.

R. Antimon. Tart. gr. ii.—Aquæ lb. i.—misce.
A table-spoonful to be drank every hour.

At eleven o'clock in the forenoon, I found the blood exceedingly buffy and cupped, the serum was of a deep orange colour. There was still some morbid heat of the skin, and the pulse though moderated at the moment that the blood had flowed, was again strong and frequent; and the symptoms of pyrexia though decreased were not subdued. The same orifice was again opened, and 20 ounces of blood allowed to flow, which had a decided good effect in lowering all the febrile symptoms. The head was shaved, and the antimonial mixture was continued every hour.

In the evening, at 5 o'clock, the patient was found much better in every respect, and had had two moderate fluid stools; the fulness at the epigastrium was decreased, but pressure over that part caused some uneasiness, therefore four leeches were applied to the epigastrium, and the patient was ordered Blue Pill and Compound Extract of Colocynth, each six grains, at bed-time.

April 17th.—The patient had some sleep last night, and feels exceedingly relieved from all the most distressing symptoms which have troubled him for some days past. A slight degree of fulness at the epigastrium remains ; he has had no stool in the night.

Four leeches were directed to be applied to the epigastrium, and the antimonial mixture to be repeated every hour.

Two pills as last ordered, night and morning.

Pulv. Jalap. Comp. 3 i. to be taken at noon.

Arrow-root in small quantity.

April 18th.—Four free stools were procured by the jalap ; he slept tolerably, and is in every respect better : the skin and eyes are still of a deep saffron colour.

R. Infus. Sennæ Comp. 3 iv.

Magnesiæ Sulphatis—Sodæ Sulphatis āā 3 iv.

Mannæ 3 ii. Tinct. Sennæ 3 i.—misce.

A wine-glassful to be taken immediately.

April 19th.—No pyrexia : the fulness at the epigastrium is decreasing daily ; he has been purged twice. He is languid, pale, and yellow.

R. Calomel. gr. xxiv.—Opii gr. i.

Extract. Colocynth. Comp. 3 ss.—misce et divide in Pil. No. iv. Two pills to be taken at bed-time.

Pulv. Jalap. Comp. 3 i. early to-morrow.

April 27th.—These medicines were repeated every second day, till this date. The Jaundice gradually disappeared, and the fulness at the epigastrium decreased.

R. Extract. Colocynth. Comp. 3 i.—Aloes 3 i.

Pil. Hydrarg. 3 ii.—misce et divide in Pil. No. xxiv.

Two pills to be taken night and morning.

After this, the diet was restricted to tea, bread, sago, and bread-pudding for a month ; mild aperients were used daily, and the patient recovered perfectly.

This was one of the most severe cases of continued Fever which I have seen in India, and the disease had so nearly run its course to a fatal termination, before the patient was placed under my care, that there was much reason to doubt whether such active treatment as was requisite to save life, could be practised with safety at that late stage of the disease. It is not often that such a happy result can be expected when disease of this sort is not met by proper remedies at an earlier period. No comment is requisite on the treatment pursued at the commencement of this man's illness. There can be no doubt that all the worst symptoms might, and ought to have been prevented by timely depletion, by free blood-letting, much less purging, and allowing no food or wine.

CASE CLIII.—Mrs. Carneys, *Æt.* 20 ; a delicate woman, in the fourth month of pregnancy. Was admitted into the General Hospital on the 16th of June, 1834, at 8 o'clock P. M., having suffered for five days from severe fever, not preceded by rigor. She has repeatedly taken purgatives, and leeches have been applied to the epigastrium. Nevertheless, she feels herself getting daily worse, and therefore, comes to Hospital. There is at present ardent heat of skin, head-ache, and anxiety ; her pulse is 126, and not very full or strong ; there is no morbid fulness at the epigastrium.

Apply six leeches to the temples, and let the head be shaved.

R. Calomel. ʒ ss.—Pulv. Antimon. gr. iv.—To be taken at bed-time.

R. Antimon. Tart. gr. ii. Aquæ lb. i.—misce. Let her take one ounce every hour while she remains awake. Food, tea.

June 17th.—She has had no sleep, and no stool during the night ; she felt a transient chilliness about 2 o'clock A. M., and her skin is now cool and perspiring freely. Pulse 122 and soft: the tongue is moist and yellowish, but very slightly coated ; she suffers now from great anxiety and debility, and is unable to raise herself in bed, but she is entirely free from head-ache.

R. Calomel. ʒ ss. Extract. Colocynth. C. gr. vi. in two pills at 7 o'clock.

Four grains of Quinine to be given at 6, and repeated at 9 and 11 A. M., and at 1 and 4 o'clock P. M.—

Food, tea and thin sago.

Vesper.—The bowels have been freely opened by the pills, and she is better in every respect, but still there is some anxiety, and she complains of noise and sense of confusion in the head, probably the effect of the Quinine ; pulse 108 and soft. The Quinine repeated in the dose of two grains at 9 and at 11 o'clock P. M.

June 18th.—She slept about an hour and a half, and appears much relieved and cheerful : she had one stool early this morning ; the skin is temperate, pulse 112 and soft ; the tongue moist and nearly clean. A small quantity of wine is now given in the sago.

R. Pil. Hydrarg.—Extract. Colocynth. C. āā gr. vi. in two pills, at 6 o'clock A. M.

Two grains of the Sulphate of Quinine were ordered at 10 o'clock A. M. and at 2 and 6 P. M.

Vesper.—She is improving slowly, but has had no stool ; there is no pyrexia.

R. Pil. Hydrarg. gr. xii.

Extract. Colocynth. Comp. gr. vi. in pills at bed-time.

June 19th.—She slept, and is better in every respect ; but has had no stool ; there is no morbid heat of skin.

All treatment ordered to be repeated as yesterday, and let a purgative enema be given at noon.

June 20th.—She remains free from fever, but is still very weak. Bowels free. The treatment was repeated daily. She was reported convalescent on the 22nd, and discharged on the 25th of June, 1834.

CASE CLIV.—H. G. Mahoney, Æt. 26 ; of middle stature, and delicate constitution, above 5 years in India. Was exposed to cold on going home from a Ball, on the night of the 5th of August, 1834, but he felt little ailment, except a dull aching in the back of the neck, and slight transient pains in the limbs and spine, till about 5 o'clock P. M. on the next day, when he experienced a sense of extreme lassitude and oppression, soon followed by headache, and feverish heat, which increased so much towards midnight, that he then drank nearly a wine-glassful of Castor Oil, which operated freely some time after day-light, but he felt no alleviation of the febrile symptoms. I was called to see him at $\frac{1}{2}$ past 10 o'clock A. M. He was then much distressed

by head-ache, and a sense of oppression at the chest. His face was flushed, the eyes were blood-shot, and there was much morbid heat of the whole surface. The pulse full and strong; tongue white, and rather dry. He was immediately bled to 20 ounces, which moderated the arterial action, and a slight moisture appeared on the forehead. He was restricted to tea and a small quantity of soda-water.

R. Calomel. ʒ ss.—Extract. Colocynth. C. gr. v.—to be taken immediately, in two pills.

R. Antimon. Tart. gr. ij. Aquæ lb. j. misce. A table spoonful to be drank every hour. Apply 10 leeches to the temples at 3 o'clock.

Vesper.—He has been twice purged freely. The blood drawn this forenoon is buffy; pyrexia is much decreased, but his face is still flushed, and there is some anxiety and restlessness.

R. Pil. Hydrarg. gr. xii. n. s.

August 8th.—He has had one stool in the night, and slept very little: the pulse is frequent, but not full or hard; he has slight head-ache, and there is still some morbid heat of the skin, and a redness of the eyes; the tongue is white and moist, and much loaded at the root.

R. Infus. Sennæ C. ʒ iss.

Magnesiae Sulphatis—Mannæ āā ʒ ii.

Tinct. Jalap. ʒ i. misce, statim sumend.

The Tartar Emetic solution was ordered to be repeated every 2nd hour, and twelve grains of Blue Pill to be taken at noon.

Vesper.—He has had three free stools ; the pulse is frequent, febrile heat moderated, and he is in all respects somewhat relieved : but a degree of anxiety remains, with very little thirst, ; the tongue is white, moist, and nearly clean.

R. Pil. Hydrarg. gr. xii. H. s.

August 9th.—He has passed a restless night, with feverish heat, but no pain ; at midnight he applied a synapism to the epigastrium, but soon after thinking it wrong to have done so, he took it off in a quarter of an hour. The pulse is now, (at 6 o'clock A. M.,) 126, but not hard ; the skin is hot ; there is increased anxiety, and his inquiries as to his actual state and the probable termination of his fever, are very hurried but entirely coherent. He has had two scanty fluid stools in the night.

He was made to sit on a low stool in the verandah of his bed-room, and supported by a servant, while several large jars of cold water were slowly poured over the head and body ; after which he was quickly wiped dry and laid in bed. The employment of the cold affusion did not occupy above 10 minutes, and on being re-placed in bed his pulse was only 92 ; he was quite cool, and the hands were rather purple. A cup of warm tea was therefore given as soon as possible, and tranquillity enjoined.

At $\frac{1}{2}$ past 9 o'clock, the pulse had again become frequent, and there was some morbid heat of the skin, which induced me to repeat the cold affusion ; the immediate effect of which was as satisfactory as

before. A small cup of thin sago was given, and he was directed to take 12 grains of Pil. Hydrarg. at noon.

At 4 P. M. there was no return of morbid heat, and the pulse had not again risen above 90, but he was very languid; therefore he was ordered to take four grains of Sulphate of Quinine in solution at 4, and to repeat a similar dose at 6 o'clock.

R. Pil. Hydrarg. gr. xii. \mathcal{H} . s.

August 10th.—He slept and is now tranquil, and feels better in every respect: some bread allowed with tea, and sago with a small quantity of wine twice in the day.

R. Pil. Hydrarg. gr. xii. \mathcal{M} . et v.

R. Quininæ Sulphatis \mathfrak{g} ii.—Aquæ \mathfrak{z} xx.

Acid. Sulph. Dilut. 3 ss. misce.

Two ounces to be drank at 9, 12, and 3 o'clock.

A purgative enema to be administered at noon.

August 11th.—He has had two stools and has slept tolerably well; he appears better in every respect.

All treatment repeated.

August 12th.—Convalescent.

R. Extract. Colocynth. C.—Pil. Rhei. C. āā gr. vj. every night. One dose of Quinine was given at 11 o'clock daily, and the diet was regulated for a few days longer.

The four cases above detailed, may show the different degrees of intensity of the ardent fever of the hot season, and the modifications requisite in the treatment, under different circumstances. The first was a Frenchman, recently arrived in India of tem-

perate habits, and usually attentive to the regular state of his bowels. Although his fever was very violent, it was alleviated by twice bleeding from the arm, and the application of eight leeches ; besides which, very little medicine was required.

In the second case, we see the evil effects of omitting the use of the lancet at an early period of continued fever. High inflammatory symptoms and jaundice, with intense congestion of the abdominal viscera and brain, to such an extent that life was hazarded ; were arrested by a bold and simple treatment, which would probably have been of little service, 12 or 15 hours later ; and although the first blood-letting moderated the disease, its fatal tendency was only arrested by opening the vein a second time, at the end of four hours after the first bleeding, and then the patient was safe, and prepared for the reasonable employment of subsequent treatment, whereby the remains of visceral disease were slowly removed, and the induration at the epigastrium reduced. It will be observed, that a restricted and very slender diet was requisite for a long time after the more urgent symptoms of the disease had ceased. The good sense of the patient is often quite as requisite in such cases with respect to the diet that is used, as the instruction of the physician with respect to the medicines prescribed.

In the third case, a delicate woman, the fever was not arrested at an early stage, and she only came under my care when there was great prostration of strength,

with anxiety, and the pulse was rapid, but without hardness or fulness. The absence of any urgent cerebral symptoms, or of affection of the liver, or of any gastric disorder, justified the omission of the lancet at that remote stage of the disease ; and a remission of pyrexia soon afforded room for the employment of Quinine : but the rapid pulse and prostration of strength, required a careful treatment for several days.

The fourth case derived marked benefit from the cold affusion, after V. S., leeches and purgatives ; and is an example of the very great change which can often be produced in the pyrexial movement of the system, in the space of a few minutes, by the use of the cold affusion ; if the period of its administration be well chosen, and its beneficial effects secured by the timely use of quinine.

CASE CLV.—McGee, aged 21 ; a middle-sized and muscular man, recently landed from Europe. Was admitted into the General Hospital at 4 P. M. on the 19th of April, 1826. His illness commenced with a transient rigor two days ago, when on guard : he had a purgative in the Fort, this morning, which has operated. The usual symptoms of ardent fever are now present, with head ache and flushed face.

V. S. ad lb. iss.

R. Calomel.—Extract. Colocynth. Comp. āā ʒ ss. statim.

Apply 12 leeches to the temples at 7 P. M.

April 20th.—The blood which was drawn yesterday is buffy and cupped ; he has been freely purged

during the night : his face is still flushed, and tongue loaded with white mucus ; head-ache continues.

Apply 20 leeches to the nape of the neck, and let him have a tepid bath four hours after their removal.

R. Extract. Colocynth. C.—Pil. Hydrarg. āā gr. v.

Cambogiæ gr. i.—misce fiant pil. ii. statim sumend.

Vesper.—He has had four watery stools ; the head-ache and flush of the face are unabated, although the leeches bled very freely. The tongue is coated with white mucus, and the febrile symptoms generally appear to have increased since the above report ; leaving room to regret that the lancet had not been again used this morning.

Repet. V. S. ad lb. iss.

R. Extract. Colocynth. Comp. gr. vi.

Calomel.—Pulv. Antimon. āā gr. iii.

Misce, fiant Pil. ii. H. s. sumendæ.

April 21st.—The blood taken last evening is buffy but not cupped ; he has been purged often during the night. The pulse is now 108, and rather full ; the face flushed, and the tongue is brown and moist.

Apply 8 leeches to the temples.

R. Extract. Colocynth. Comp. gr. viii.

Cambogiæ gr. i. fiant pil. ii.—to be taken at 6 A. M.

Vesper.—There is a very slight increase of fever this evening, with quick pulse, but not much morbid heat of skin.

R. Pulv. Jalap.—Magnesiæ āā ʒ ss.

April 22nd.—He has had many watery stools during the night, and is now free from head-ache. There is a remission of fever, but he feels very weak ;

the face is still rather florid ; and the tongue moist and slightly coated with mucus in the centre.

R. Infus. Sennæ Comp. $\frac{3}{4}$ iss.

— Gentian. C. $\frac{3}{4}$ ss.—Magnesiæ Sulphatis $\frac{3}{4}$ ii.
Tinct. Sennæ $\frac{3}{4}$ ss. misce—to be taken at 6 A. M.

R. Quininæ Sulphatis gr. ii.—Aquæ Cinnamomi $\frac{3}{4}$ i.
Acid. Sulph. Dilut. gtt. iv. misce.

To be taken at 10 o'clock A. M.

Vesper.—The medicine has purged him three times since morning. At 4 o'clock a sudden hæmorrhage from the nose took place ; reported to be in quantity not less than a pint ; and he is now quite cool. Medicine repeated as last evening.

April 23rd.—He is free from fever, and has had two copious stools in the course of the night. Treatment repeated.

Vesper.—There was a slight return of pyrexia for about an hour, which has now subsided. No medicine this night.

April 24th.—He slept well, and is improving ; his appetite has returned ; there is a little white mucus on the centre of the tongue, and its edges are red. Repeat the purgative in the morning, and Quinine at 10 o'clock, as on the 22nd.

April 25th.—He was very freely purged, and had no accession of fever last evening. Half the dose of purgative was ordered to be given every morning early ; and the Quinine repeated daily at 10 o'clock.

April 26th.—Convalescent. Quinine omitted. Purgative repeated.

Discharged on the 29th of April.

CASE CLVI.—J. Splint, *Æt.* 37; a stout man, recently arrived from Europe. Was attacked on the 6th of June, 1827, with fever, not preceded by rigor. Admitted into the General Hospital on the 8th, in the afternoon, suffering from ardent pyrexia and severe head-ache; pulse 92 and full. He has a scar, indicating the seat of severe injury of the head, which he received at a former period.

V. S. ad lb. i.

R. Calomel.—Extract. Colocynth. Comp. āā gr. xii.

June 9th.—He has been purged, but the fever is unabated, and his face is flushed; pulse 96; the blood is not buffy, its cruor is florid: he appears stupid.

Repet. V. S. ad lb. iss.

Infusion of Senna with Salts ordered to be taken immediately.

June 10th.—The blood is buffy: he was purged six times; the stools are of a natural color, and copious; the pyrexia is moderated, but a slight head-ache remains.

Apply 16 leeches to the nape of the neck.

R. Calomel.—Extract. Colocynth. Comp. āā gr. v.

Vesper.—He has had four stools, of dark colour; the pyrexia has subsided.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. āā gr. v., *H. s.*

June 11th.—The medicine operated twice; he rested badly, and has a slight return of pyrexia; pulse full.

Apply eight leeches to the temples.

And let him take Oleum Ricini $\frac{3}{4}$ i. at 6 A. M.

June 12th.—He has been purged, and is free from pyrexia ; the tongue is white. One ounce of Castor Oil was ordered.

June 13th.—Head-ache abated, and he says that he is well. Ordered to take 12 grains of Compound Rhubarb Pill, daily. Milk diet allowed.

June 20th.—He continues well. Medicine omitted ; but on account of having had a severe injury of the head he is retained in Hospital for observation. Mutton and soup allowed for dinner.

June 27th.—He is found this morning cold, weak, and anxious, like a person in the incipient stage of cholera ; his tongue is cold and moist : on inquiry we found that he had vomited and had been purged in the night. He was ordered to take ten grains of Calomel with one grain of opium in a pill, and the next day he was well.

A tendency to remission of the pyrexia, at some time in the course of the 24 hours, was very evident in the latter stage of the disease, in both of the above patients, and the favorable change, with subsequent slighter return of the fever, in the case of McGee, after his nose bled on the evening of the 22nd of April, would show the propriety of carefully noticing the periods of exacerbation, for the purpose of repeating the abstraction of blood by the lancet or leeches, on those occasions ; and of ordering sulphate of quinine during the remission, to prevent a return of the fever. It will be observed, that the disease was not so promptly subdued in these in-

stances, as it was in those cases where the abstraction of blood was repeated at shorter intervals, in the early stage of the malady.

CASE CLVII.—M. Mayne, *Æt.* 26; a robust man, of light complexion, 14 years in India. Was admitted into the General Hospital at noon, on the 30th of June, 1828, having been ill with fever for seven days; during which he has taken no medicine except salts. He is now suffering from slight pyrexia: he has a frequent pulse, and the tongue is loaded with white mucus; there is also pain at the scrobiculus cordis, and general fulness of the belly, with some enlargement of the liver.

V. S. ad $\frac{3}{4}$ xx.

R. P. Jalap. Comp. 3 i.—to be taken at noon.

Cream of Tartar drink allowed.

Apply 12 leeches to the right hypochondrium at 4 o'clock P. M.

July 1st.—The blood is buffy, and cupped; he has been purged six times, and is better; pulse moderated; fulness of the belly diminished.

Apply 12 leeches over the region of the liver.

R. Calomel.—Extract. Colocynth. Comp. āā gr. v.

July 2nd.—He has been purged six times; the pyrexia is abated, and he is free from pain; the tension of the belly is less.

Apply eight leeches over the region of the liver, daily.

R. Extract. Colocynth. Comp. 3 ss.

Pil. Hydrarg. gr. v.—misce fiant pil. ii.

Two pills to be taken every morning early.

July 8th.—The tension in the region of the liver is relieved, and he feels well.

Former medicine omitted.

R. Pulv. Jalap. Comp. 3 ss.

July 12th.—Discharged well.

Although the more urgent symptoms which are usually ascribed to acute hepatitis were not present in this case, it is probable that the febrile symptoms were produced by the slow progress of the affection of the liver : the enlargement of which organ required the repeated application of leeches, and very low diet, for a week after the pyrexia had subsided.

CASE CLVIII.—I. Archibald, Æt. 24 ; of a middle size and dark complexion, (four years in India, where he has followed an active life, in charge of steam engines,) was admitted into the Hospital at 7 A. M. on the 17th of May, 1830. He stated that he had been feverish, and had vomited often during the last 10 days ; in which period he had eight leeches applied to the head. He acknowledges that he had been drinking intemperately just before this illness commenced. He says that his hands were cold yesterday, but there was no rigor, and that he took ten Quinine pills in the course of the day. He has now a full hard pulse, hot forehead, and blood-shot eyes ; the urine is high-colored and scanty, and he suffers much from thirst : the belly is hard, and the right rectus abdominis muscle is more tense than the left.

V. S. ad lb. ii.

R. Calomel.—Extract. Colocynth. Comp. aa ʒ ss.

N N

To be taken in pills at 7 A.M.

Pulv. Jalap. Comp. ʒi. at noon.

Cream of Tartar drink allowed.

Vesper.—The blood is florid, but not buffy; he has had five copious, watery, black stools; the morbid heat continues, and is most intense about the head; his manner and expressions are hurried and anxious; the pulse full.

Rept. V. S. ad lb. ii.

R. Calomel. ʒi.

Extract. Colocynth. Comp.

—— Hyoscyami āā gr. iv. to be taken in pills at bed-time.

May 18th.—Pyrexia continues; the head is still hot, and the belly is hard, more especially towards the right side; the stools are scanty and nearly black; the tongue is moist, and little coated with white mucus.

Head shaved.—Rept. V. S. ad lb. iss.

A purgative Enema was administered, and ʒi. of Compound Powder of Jalap was taken at 6 A.M.

Ten leeches were ordered to be applied to the temples at noon; and an ounce of Castor Oil to be taken at the same time.

Vesper.—The medicine operated seven times freely; the evacuations are a dark, green feculence, with a few pale-yellow streaks; pulse 110 and soft. He is cooler, but slight heat of the head remains; the tongue is moist and clean; his speech is hurried, and appearance anxious.

Repeat the pills as last night.

Cold water and vinegar applied to the head.

Cream of Tartar drink allowed.

May 19th.—He had several scanty stools of natural colour, but no sleep during the night. Pulse now 122 and rather hard, and his head is hot; the belly is not tumid, but some hardness is observed towards the region of the liver; he evinces great anxiety, and frequently asks for both food and drink.

Apply ten leeches to the belly, and six to the temples.

Pulv. Jalap. Comp. 3 i. was ordered at 6 A. M.

A Purgative Enema at 10 o'clock, and an ounce of Castor Oil at noon.

Vesper.—He has had four, free, black and watery stools; is much cooler, and less anxious; pulse 108, and unsteady.

R. Calomel. gr. xii.

Extract. Colocynth. Comp. gr. vi.

—— Hyoscyami gr. iv.

To be given in three pills, at bed-time, and repeated at midnight if he should not sleep.

May 20th.—He had no sleep, and is exceedingly anxious and talkative about his own illness; had one scanty stool in the night, which is partly figured; he is apt to faint on rising to stool. Pulse 120 and rather hard; tongue moist, and little loaded with white mucus; there is still some heat of the head.

V. S. ad lb. i.

R. Pulv. Jalap. Comp. 3 i. at 6 A. M.

Apply ten leeches to the belly at noon, and give Oleum Ricini 3 i.

A Purgative Enema at 2 P. M.

The blood on cooling was not buffy ; but the surface of the coagulum was contracted.

Vesper.—The medicines have operated freely, and he has voided large masses of dark-green fæces : he feels much better ; his head is cold, and the belly cooler and softer. Pulse 108.

R. Calomel. ʒ i.

Extract. Colocynth. Comp.

—— Hyoscyami āā gr. iv. H. s.

May 21st.—He has had no sleep in the night ; the medicine procured several loose feculent evacuations of natural color ; his gums are swollen ; the tongue is moist and nearly clean ; pulse 108. Some morbid heat of the head and belly remain, and there is a strong pulsation in the abdominal aorta.

Apply six leeches to the head, and ten to the belly.

R. Pulv. Jalap. Comp. ʒ i. at 6 A. M.

A Purgative Enema every three hours, till it operates.

Vesper.—The alvine evacuations through the day have been scanty and insufficient ; pulse 126, and there is some anxiety ; the heat of the head is not increased.

Apply a blister to the nape of the neck.

R. Pulv. Jalap. Comp. ʒ i.—Tinct. Jalap. ʒ ss.

P. Scammon. Comp. ʒ ss. in Aquæ Menth. Pip. ʒ i.

May 22nd.—He has been delirious all night, and is in the same state now ; he has had one copious foetid stool in bed ; pulse 140 and unsteady. At half past 10 A. M. he became restless and quite frantic, and he appeared as if in pain, but did not complain :

if not held, he would have got out of bed. He remained in this state of furious delirium until he died, at half past eleven o'clock.

On dissection, $4\frac{1}{2}$ hours after death: the subject was not much emaciated. Effusion of blood was found in the intergyral spaces of the left hemisphere of the brain, at its upper part. Two drachms of serum were observed in the lateral ventricles, and $\frac{3}{4}$ iss. of clear serum beneath the tentorium. The liver was free from disease; the gall-bladder was contracted to the size of the end of a finger, and covered with a false membrane; the biliary ducts were pervious. The duodenum was thickened, indurated, and of a pale color, probably the result of disease of long standing; and there was an effusion of about $\frac{3}{4}$ iss. of serum, resembling a tremulous jelly, between the duplicature of the mesocolon, at the part where it crosses over the duodenum; this effused serum was tinged of a green color, from transudation of bile. The small intestines were transparent and thin.

The vomiting and other symptoms at the commencement of this man's illness, leave no room to doubt that the early stage of his fever was connected with inflammation of the cellular structure about the duodenum; the results of which were observed on dissection. His symptoms were as follows:

CASE CLIX.—C. Pounds, aged 27; a large and robust man, of dark complexion, who had resided 18 years in Bengal. Was admitted into the General Hospital at noon, on the 18th of April, 1830. He had

been afflicted for six days with severe pains in the head, which were said to arise from exposure to the sun. He had usually enjoyed good health in India, but for two years past had been subject to pains in the region of the liver. On admission, he was suffering from pyrexia, attended by a loaded tongue, and full pulse, as well as the head-ache.

V. S. ad lb. ii.

R. Calomel.—Extract. Colocynth. Comp. āā gr. viii. at noon.

Pulv. Jalap. Comp. 3 i. at 3 p. m.

Vesper.—The blood is buffy and slightly cupped; he has had no stool. There is morbid heat of the head; the tongue is moist, and loaded with brown mucus. Pulse 60 and rather full.

Head shaved, and 18 leeches applied to the nape of the neck.

A Purgative Enema ordered.

R. Calomel.—Extract. Colocynth. Comp. āā 3 ss.

Extract. Hyoscyami gr. iv. in pills at 8 p. m.

April 19th.—He slept little, and was purged four times; the belly is soft, flat, and not pained by pressure; the head-ache is not alleviated, but the scalp is cooler, and there is less morbid heat of the surface generally; the pulse is 66; the tongue is as above stated, but almost dry. He has been troubled with much nausea, and a slight cough all night.

Apply 16 leeches to the temples.

R. Pulv. Jalap. Comp. 3 i. at 6 A. M.

Infusion of Senna with Salts at noon.

Vesper.—The medicines have operated very freely, and the evacuations are nearly of natural color ; there is no pyrexia at present ; pulse 74 and soft ; the tongue is less loaded. Any movement of the head excites pain.

Apply 12 leeches to the temples.

R. Extract. Colocynth. Comp.—Calomel.

——— Hyoscyami āā gr. iv. H. S.

April 20th.—He has had little sleep, and was somewhat delirious in the night ; he was purged several times ; the belly is soft, but the head is rather hot and there is some morbid heat of the skin. Pulse 66 and moderate ; his tongue is dry, rough, brownish, and very little loaded ; the gums are slightly sore.

V. S. ad lb. i.

R. Extract. Colocynth. Comp. ʒ ss.

——— Pil. Hydrarg. gr. v.—at 6 A. M.

Pulv. Jalap. Comp. ʒ i. at noon.

Vesper.—The blood taken in the morning is not buffy ; he has had four stools, the head-ache has much decreased, and he is cool ; pulse 75 and soft.

Apply four leeches to the temples.

R. Extract. Hyoscyami—Pil. Hydrarg.

——— Colocynth. C. āā gr. iv. in 2 pills at bed-time.

April 21st.—He slept little, and has had several free stools, pulse 76 and soft, the skin is cool and he has hardly any head-ache ; the cough has increased, and he expectorates a bloody mucus ; the belly is inelastic, but there is no pain or hardness in the region of the liver.

Apply ten leeches to the scrobiculus cordis.

R. Pulv. Jalap. Comp. 3 i. at 6 A. M.

Pills repeated at bed-time as last night ;—and a Blister applied to the nape of the neck.

April 22nd.—The medicine has operated three times since yesterday morning ; he is cool, the pulse 76, and he is free from head-ache ; there is some brown mucus on the tongue. The cough has nearly ceased. Four leeches were applied to the scrobiculus cordis, and a purgative was administered, which operated four times.

April 23rd.—The cough has increased much since midnight, the sputa are about 3 iiss. of bloody mucus ; the edges of the tongue are moist, its centre is dry and brown ; a severe head-ache has returned, and there is some morbid heat of the scalp. Pulse 74 and moderate. He ascribes the above unfavorable symptoms to cold, as he placed his bed in the draught of air before a window during the night.

V. S. ad lb. i.—Apply eight leeches to the temples.

R. Extract. Colocynth. Comp. gr. vi.

Calomel. gr. xii.—at 6 A. M.

R. Pulv. Jalap. Comp. 3 ss.—P. Rhei. 3 i.

Aquæ Menth. Pip. 3 i—to be taken at noon.

The body to be washed with hot water.

Vesper.—He bore the bleeding well, and above lb. i. of blood was taken, which when cool was cupped and buffy ; but he did not appear much relieved by it. As the bowels had not been moved by 3 o'clock, half an ounce of Castor Oil was then taken ; but it had produced no effect by 8 P. M. and he felt worse,

but was cooler. The pulse 76 and soft. A purgative enema was therefore ordered, and at bed-time two pills composed of

Calomel.—Extract. Colocynth. Comp.

Extract. Hyoscyami āā. gr. iv.

April 24th.—The medicine produced two black watery evacuations; he is apt to faint on rising to stool. The gums are slightly sore. He is free from head-ache, and the cough has ceased. Pulse 96 and soft, tongue slightly coated with white mucus. He slept little, but is now tranquil and cool; the feet are cold, and there is an appearance of exhaustion about him, which induces me to advise a slight increase of farinaceous food, and to order sinapisms to the feet, and the application of *Liquor Ammoniae Carbonatis* to the head. The purgatives were repeated, and operated twice, after which he was better, and in the evening he appeared quite tranquil. Blue pill, Colocynth, and Hyoscyamus were given at bed-time.

April 25th.—He slept tolerably, and his bowels were freely moved in the night; the symptoms are all abated, except that he has a slight cough, and the urine is high colored. He is hungry, and considers himself convalescent. Purgatives were repeated, and he was allowed a small quantity of porridge and milk. On the 26th, he appeared much better, but the purgatives had no effect, therefore they were repeated, and then operated only once. In the evening he was restless and anxious, the feet were cold,

and the tongue was dry, and slightly coated with a grey fur. An enema was ordered, and he took ten grains of Blue Pill, with as much Compound Extract of Colocynth, and four grains of Extract of Hyoscyamus. After this he was tolerably quiet till about midnight ; some morbid heat of skin, and great anxiety then took place, with head-ache, followed by increased heat of the scalp ; and the cough returned. These symptoms were attended with much debility, a sharpness of the nose, and tension of the muscles of the face ; he became stupid, and the stools passed involuntarily in bed. The gums were swollen and livid, and he was much distressed by the soreness of the mouth.

There was no very material variation in his condition, till the 30th of April ; when suppression of urine was added to the other symptoms : and he died at 2 P. M. on the 1st of May.

On Dissection, the subject was observed to be emaciated. There was some opacity of the tunica arachnoidea, and much serous effusion between that membrane and the pia mater. The substance of the brain was softer than usual ; the morbid softness was very remarkable in the left hemisphere. There was a considerable effusion of blood into the central portion of the middle lobe of the brain, on the left side, and some of this blood extended into the inferior cornu of the lateral ventricle. That part of the brain in contact with the blood, was so nearly fluid, as to be at first sight mistaken for pus. The liver was

large; the base of the gall-bladder, and edge of the liver were adherent to the colon. The gall-bladder was small and elongated, it contained some dark-green bile; and it, as well as the capsule of Glisson, was covered by a false membrane.

This case proves the intractable nature of fever, attended with cerebral symptoms; if the disease be left without treatment for several days. I think there is reason to regret that the V. S. had not been repeated on the morning of the 19th, and the leeches applied at noon of that day. The most remarkable changes which took place in the progress of the disease, were, that after exposure to cold on the 23rd of April, and the unfavorable state after midnight on the 26th; at the latter date I apprehended the actual effusion of blood to have taken place. The ulterior change which occurred in this case, appears to have been softening of the brain. When this man came first to the Hospital, he had been ill many days, and vascular engorgement of the brain must then have been attended by some degree of effusion which caused the slow pulse, and masked the more urgent nature of the malady. The absence of paralytic affection during the course of the disease is remarkable. The state of this patient's circulation, would tend to support the opinions of those Physicians who have observed, that slowness of the pulse is one of the symptoms by which inflammation of the substance of the brain may be distinguished from inflammation of its membranes. I

believe that deep-seated cerebral affection, often masks the progress of acute disease of the most destructive description, in those fevers of the hot season, in many cases of which symptoms of gastro-enteritis predominate, and are attended with permanent morbid heat of the forehead, although the patient does not acknowledge the existence of pain.

In the two cases which are last detailed, there is ample evidence of the disadvantage of commencing the treatment of severe cases of continued fever at a late period. In one of these, the patient had submitted to the course of the disease for six, and in the other for ten days, before active remedies were employed; and in both cases effusion of blood was found in the brain after death. When less severe and more fortunate cases of this sort occur, and the patients escape with life, we occasionally find the convalescents afflicted with amaurosis, with deafness, loss of power of speech, or hemiplegia. Some of these consequences of fever may be inevitable, but I apprehend that many of them may be ascribed to the want of active and timely depletion; they are the result of unsubdued acute disease. We here see that even copious blood-letting does not effectually reduce the febrile and inflammatory symptoms in such severe cases, if not employed early, and repeated at short intervals, in urgent cases. It is in vain that we attempt by active purgatives to compensate for the omission of a proper use of the lancet; and at late periods the frequent exhibition of the drastic

cathartics increases irritability to an extreme degree, while the strength is reduced, without any adequate influence in the removal of disease. Whatever degree of cerebral congestion and of oppression at the præcordia, with visceral disorder, may remain, after the patient is much reduced and not in a condition to admit of the further abstraction of blood from the arm; had better be treated by the cautious application of leeches, counter-irritation, mild aperients, and the steady employment of mercury. The latter remedy is serviceable in almost all the cases now alluded to, except where there is much enlargement of the spleen, and even then, if the morbid condition be inflammatory, and cerebral symptoms predominant, I have had recourse to mercury with benefit.

Extreme nervous irritability, indicates in some cases, the necessity of having recourse to opium or Hyoscyamus, in combination with mercury; and those cases are mostly found among patients of dissolute and intemperate conduct, who are remarkable for protuberant flabby bellies, and a load of soft fat on the surface of the body. Before depletion their cheeks are often mottled, and the nose purple; after free use of purgatives they fall into a state of nervous tremor, and the patient, if subjected to much active depletion, is apt to sink. Local disease of the brain or liver in such subjects is in general incurable, because active depletion is inadmissible.

The local disease observed on the post mortem inspection of the following cases, may be sufficient to

show the manner in which ardent fever often proves destructive.

CASE CLX.—A. Brown, aged 24, first officer of the Barque *Navarino*; a stout man, with a florid face. Was admitted into the General Hospital on the evening of the 27th of August, 1833, having been ill 9 days with ardent fever; for which he had taken Calomel and purgatives, but he had not been bled. There was great anxiety, restlessness and a contracted brow; the belly was tumid but elastic, and the tongue was dry, pointed, and red. He died at $\frac{1}{2}$ past 7 P. M. on the 28th of August.

On dissection, venous congestion of the brain was seen. The liver was rather large but healthy, there was much inflammation at the root of the mesentery, and an extensive ecchymosis just below the duodenum, extending across the spine, in the vicinity of which considerable serous infiltration existed. There was also some morbid vascularity of the duodenum.

CASE CLXI.—Edward Stewart, aged 25, formerly a sailor of the Brig *Agnes*, was admitted into the General Hospital on the evening of the 14th of August, 1833. He stated that he had been ill six days, in consequence of much fatigue and privation. The head was hot, the face flushed, the pulse 98, but not very full nor hard; the brow was contracted, and he answered questions slowly; the tongue was dry and but little loaded, and there was at times nausea and inclination to vomit. He was restless on the night of the

14th; on the 15th he was delirious, and he died at 6 o'clock P. M. on the 16th.

On dissection the subject was but little emaciated, there was much morbid vascularity of the brain and a coagulum of blood was found between the tunica arachnoidea and pia mater, near the superior longitudinal sinus at the right hemisphere of the brain. There was but little serum in the lateral ventricles. That portion of the arachnoid membrane, which is spread over the base of the cerebellum, was thickened and opaque; and there were about five drachms of clear serum below the tentorium. The liver appeared healthy; the base of the gall-bladder was adherent to the transverse portion of the colon, apparently not a recent disease. The spleen was slightly enlarged, soft, and dark-colored: there was considerable morbid vascularity of the mucous coat of the stomach near its pyloric orifice, and slight morbid vascularity at the root of the mesentery and mesocolon.

CASE CLXII.—V. Hyacinth, aged 27, formerly a sailor of the French Ship *L'Industrie*. Was admitted into the General Hospital on the evening of the 27th of August, 1833, having been ill three days with fever not preceded by rigor. The pyrexia was attended with much anxiety and uneasiness in the belly; the head was hot, and the epigastrium doughy and full: he had a contracted brow, and soon became delirious, attempting frequently to get out of bed. On the 30th he had frequent vomiting, with coldness of the surface like the cold stage of Cholera, and the skin of

the fingers became shrivelled. He had two pale-grey stools in the afternoon, and the tendency to collapse decreased ; but the efforts to vomit continued, and he constantly endeavoured to get out of bed. The skin generally was now cool, except at the abdomen, which was hot ; the centre of his tongue was brown and moist, but its edges were red. He died at 11 P. M. on the 31st of August, 1833.

On dissection, eight hours after death, the subject was but little reduced ; the belly was rather tumid, and on inspecting the cavity of the abdomen, an extreme degree of inflammation of the peritoneal surface of the stomach, small intestines, and spleen was observed ; and there was much sero-purulent effusion about the spleen and large extremity of the stomach : the liver was rather smaller than natural, and its anterior edge was thin ; the spleen was enlarged and very soft, and there was much inflammation at the root of the mesentery and mesocolon.

CASE CLXIII.—Wm. Brooks, *Æt.* 33, a tall and stout man, formerly a sailor of the Ship *Brunswick*, but now one year a resident in Calcutta. Was admitted into the General Hospital on the 11th of April, 1833, at 6 P. M., laboring under ardent fever, and severe cerebral symptoms, consisting of flushed face, red eyes, and very hot forehead, but no head-ache. His disease was of eight days' duration, and he had a rigor four days ago, and was afterwards continually hot ; he had been taken care of at a *punch-house*, and rubbed with turpentine. He remained very hot and restless.

with a dry skin, and had occasional tendency to delirium. He was bled once to 20 ounces, had 26 leeches in the course of two days, and the cold affusion was used, but without benefit. He died on the 13th, within 45 hours of admission. On dissection, a coagulum of blood was found at the upper part of the right hemisphere of the brain near the superior longitudinal sinus, between the tunica arachnoidea and pia mater; and there was much serous effusion between the arachnoid and pia mater over the whole upper surface of the brain. The liver was slightly enlarged, the gall-bladder smaller than natural.

CASE CLXIV.—W. Manton, aged 29, resident in Calcutta above seven years; of light complexion, and small stature, with a large belly: was brought to the General Hospital on the evening of the 24th of November, 1829. His friend stated that he had been ill altogether about a month, having had fever, for which he treated himself with Calomel and purgatives, and thinking he was well, he went down the river on the 10th of the month and walked on shore for the purpose of shooting. The next day he was very ill with fever, and had been delirious the greater part of the time since that date: there was a rigor on the 19th. On his arrival at the Hospital, the pulse was 126 and rather weak, there was no morbid heat of the body, the belly was tumid and inelastic, and pressure over the region of the liver as well as at the epigastrium and left side caused pain. The tongue was white, pale, moist, and but little loaded, and he had

occasional hickup. He died 19 hours after admission. A few leeches were applied to the temples and epigastrium, and sinapisms to the feet ; and mercury was given, but with little hope of doing good.

On dissection, there was much soft fat covering the fasciæ of the abdominal muscles, a large quantity of fat was also observed about the heart, and in the omentum majus. The liver was large, and gorged with blood, its texture rather soft, and its color darker than natural. The spleen was surrounded by a very large quantity of fat. There was a slight lurid discoloration of the mucous membrane of the stomach. Effusion of blood had taken place between the tunica arachnoidea and dura mater, the coagulum of which formed an extensive lamina above the left hemisphere of the brain. There was ecchymosis in the intergyral spaces at the left side of the brain, and some opaque sero-albuminous fluid between the pia mater and tunica arachnoidea, at that part. Nearly three ounces of clear serum beneath the tentorium. The large coagulum of blood which was found on dissection, will be remembered by Mr. Turner, then surgeon to the General Hospital.

CASE CLXV.—Mr. Potter, aged 38, of fat and bloated habit, and many years in India ; had fever in November, 1828 ; on convalescence from which he went down the river to Diamond Harbour, and there he walked on shore until he was fatigued. In a few hours after this he felt a distressing sense of weakness in the lower extremities, and on the following morn-

ing he was affected with paraplegia ; the lower extremities being entirely powerless, and nearly void of sensation. It was presumed that from fatigue in walking, some vessel had been ruptured in the spinal canal. By pursuing a system of mercurial alteratives, and repeated application of leeches to the loins, followed by blisters, and a long course of artificial Cheltenham water, he gradually recovered the power of his lower extremities so as to walk very well with a stick, and he could get into a buggy without assistance ; but a permanent weakness of the lower extremities remained.

The two last patients may probably have been peculiarly predisposed to effusions of blood, in consequence of the fevers which they had recently suffered. Cases of this sort ought to be a warning to convalescents ; who should not be allowed prematurely to undertake active exertion when recovering from fever.

We sometimes find continued fever come on slowly in the hot season, after frequent but transient exposure to the sun. Patients who suppose such an ailment unimportant, try to cure themselves by taking some Calomel and mild saline aperients, and using but little food for two or three days ; and that food is usually soup. By these means the disease is moderated, but not cured ; a slight degree of morbid heat of the head remains, the patient passes restless nights, and then vomiting takes place, and on the fourth or fifth day the tongue becomes of a deep-red color and

somewhat swollen. As the disease advances, the morbid heat gradually increases, and is uniform over the body and extremities; the nose becomes sharp, and the muscles of the face are contracted. The patient feels extreme exhaustion on any attempt at exertion, and is very apt to faint when he goes to stool. If Calomel be repeated, the gums are very soon made sore, and the tongue becomes more inflamed: but the affection of the mouth is attended with no alleviation of the fever. So insidious is the daily progress of the disease, that a practitioner is sometimes not called till the sixth or seventh day, and he then finds that the patient has slight heat of the forehead, frequent vomiting, and incessant restlessness; the pulse is above 100, but there is no ardent heat of the surface, although the skin is dry, and the tongue is moist, clean, and of a deep-red color. At this time gastro-enteritis, attended with insidious cerebral affection, has arrived at a dangerous degree, and there can be no doubt of the necessity of bleeding from the arm, shaving the head, and applying leeches repeatedly to the temples and epigastrium, until the disease be subdued. The patient should be kept in a state of complete tranquillity, and take mild purgatives as soon as they can be retained. It is in general best to order Blue Pill, and Compound Extract of Colocynth, each six grains, every night; and ten grains of Jalap, with as much Compound Powder of Scammony (Ph. Ed.) in the mornings; but when these are rejected, we may succeed by giving a table-spoonful of Infu-

sion of Senna with Manna, or 3 i. of Epsom Salts in 3 iss. of tepid water, every 2nd hour, till it operates freely. In those patients who apply late for advice, the power of the constitution is apt to fail before the disease is subdued. When this affection has made its progress for several days in delicate subjects, bleeding from the arm is seldom borne more than once, and after that, leeches must be trusted to; and if the patient be too weak to bear many leeches, a small blister to the region of the stomach will be useful. It need not exceed three inches square; and should acute symptoms recur, a few leeches can be applied near the edges of the blistered part. As long as any dryness of the skin remains, I have almost always found benefit from ordering two grains of tartarised antimony, to be dissolved in a pint of water, a table-spoonful of which is to be drank by the patient every hour. Tea, toast-water, and farinaceous food in very small quantities, are the only articles of diet admissible during the treatment of the disease.

This insidious fever is usually a trivial complaint if remedies be used early; but after the lapse of several days, without proper treatment, it is attended with the utmost danger. I have remarked these cases most frequent and most severe, in those hot seasons when variola was unusually prevalent; but do not know that the concurrence of the two diseases in the same season was to be considered otherwise than accidental. In delicate Europeans, of light complexion, I have seen pyrexia of several days' duration, attend-

ed with heat of the forehead, although the patient denied having any head-ache; even when the forehead was so hot that I have often suspected he intended to deceive me, for the purpose of avoiding active remedies; but this condition has occurred so often in cases where I could entirely rely on the candour of my patients, that I am fully satisfied, a hot forehead may exist when there is no pain. I am equally satisfied, that it is then an indication of a degree of disease which cannot be very easily overcome. In all these cases our utmost attention is requisite, and an active steady treatment, otherwise the patient will be destroyed; and then we find turgescence of the vessels of the brain, and serous effusion into the ventricles. A warning of the nature of these cases, is sufficient to insure a correct treatment.

The peculiar constitution of the Natives of India renders them less obnoxious to suffer severely from the common continued fever; and their temperate habits of living prevent their being influenced by many of the causes which often excite this form of fever in Europeans: therefore the disease is less frequent and much less severe among them. From these causes, the majority of the ordinary cases which occur, recover in a few days, by their usual custom of lying still, and taking no food of any sort. Nevertheless, Natives do frequently suffer in a severe degree, from continued fever, after fatigue, exposure to the sun, and sudden vicissitudes of temperature; and then

the cerebral symptoms are urgent, the eyes are blood-shot, there is an extreme degree of morbid heat, and a rapid strong pulse. When native patients are suffering from this more intense degree of inflammatory fever, moderate blood-letting from the arm is requisite at an early period of the disease; after which they should take a mild purgative, followed by the weak solution of tartarised Antimony; but for by far the greater number, a few leeches at the commencement of the disease are sufficient to remove the inflammatory symptoms.

I have very often bled both Hindoos and Mahomedans from the arm, when they were suffering severely from common continued fever; and with the happiest results. The abstraction of only a small quantity of blood from the arm, and the application of four or six leeches afterwards to the temples or epigastrium, usually subdue morbid arterial action, and ensure an early and complete convalescence.

REMITTENT FEVER.

REMITTENT Fevers are characterised by a diurnal exacerbation and remission of the pyrexia; the paroxysm not usually coming on with rigor; (though in some cases the commencement of the disease is ushered in by shivering,) the hot stage variable in intensity and duration; followed by perspiration, which is often profuse, and occasionally attended with sudden and extreme prostration of strength. The intervals between the par-

oxysms, often marked by entire cessation of pyrexia. In some of the worst cases of this disease, the phenomena which occur during a paroxysm, observe no regular order of succession.

No concise definition could be framed, that would comprise all the varieties* of remittent fever; since we find that their predominant characters are much modified by the prevailing constitution of the atmos-

* Different shades of Remittent Fever are found to occur in autumn, in almost all parts of the world, where marshes, or forests with a dense underwood exist; which are productive of an humid atmosphere, deprived of free ventilation. Such localities within the tropics, have always been exceedingly unhealthy, and when people are exposed to their miasmata, while under the influence of fatigue, privation, and mental despondency, the most malignant forms of fever are liable to be generated.

Sir John Pringle's description of the remittent fevers of the Army in the Low Countries, does not entirely resemble the accounts which we have of the Walcheren fever, the product of a neighbouring soil at a different period; and both the diseases just mentioned, are very different from Sir William Burnett's account of the remittent fevers which the sailors of the fleet in the Mediterranean suffered when under his able medical superintendence. It has also been observed that the autumnal remittent fevers of South Carolina, and those parts of the United States of America *under rice cultivation*, and more or less subject either to annual inundations, or to heavy periodical rains, appear to vary in some respects from any of the diseases above alluded to, as well as from the Bengal remittents of our most unhealthy seasons. Still, with the difference which frequently occurs in some particular symptoms, there is a general resemblance in the character, and in the course and termination of these fevers. The greatest discrepancies occurring among the slight cases in healthy seasons.

phere at the time, and by the habits and conduct of the individuals who suffer from the disease, as well as

In this country, modifications of Remittent, are spoken of as the *Jungle*, the *Terhai*, or the *Hill fevers*, of the upper provinces of Bengal. It is the same description of fever which rages annually in Assam, in the rainy season, and after its termination; and is there in most respects identical with the disease which proved so destructive to our troops at Arracan during the late war.

Essentially of the same sort are the *Wynaad* fever and the *Jungle* fever of the Madras presidency; and the fevers which appear to have been at times exceedingly prevalent, and very fatal at particular spots in the Bombay presidency in unhealthy seasons; especially in the jungly and hilly districts of the Banglana country between Candeish and Surat, as well as at the pass of *Sundwa*, and at the forest of *Nowapoor*a. In many of these fevers, the remissions are incomplete, and indistinct, and last for but a very short period: in almost all of them there is early prostration, not only of muscular strength, but of vital energy, as is seen by the prolonged coldness which occurs in some cases, and the tendency to collapse which exists in others. More or less enlargement of the spleen takes place in almost all these fevers. It would be an interesting subject of inquiry, to ascertain if possible whether any peculiar changes occur in the blood, as a general trait, and at an early period, in all these fevers.

The autumnal remittent fever of temperate regions, was denominated AMPHIMERINA PALUDOSA, by some of the older physicians, who studied the *symptoms* of the marsh fevers of Europe with great attention, and attached considerable importance to classical accuracy in the name of a disease, which they had not the advantage of observing in its more marked and formidable shape, in which it often appears during the autumn of unhealthy seasons, in tropical countries, where marshes and jungle, or ill-ventilated valleys exist, and where abundant exhalations arise from a rich alluvial soil. It is only

by their peculiarities of constitution ; but more especially by peculiarities in the locality, or by particular occurrences affecting it for a season, such as inundations from the sea, or the overflowing of rivers, or untimely rain, and a clouded, foggy, hot, and moist atmosphere. The nature and extent of the local affections which take place in the course of remittents, also give rise to peculiar symptoms, and modifications of these diseases.

In the lower provinces of Bengal, the autumnal remittents of the most healthy seasons, appear to be but little different from those slighter cases of irregular intermittent fever which are connected with functional disorder of the digestive organs ; while the more malignant types of disease which occur during unhealthy seasons, very much resemble the *pernicious* intermittents of the most deadly fens of the south of Europe, which are characterised by symptoms indicating extreme congestion of blood in one or more vital organs, and are marked by the early accession of debility, oppressed respiration, a small weak pulse, anxiety and the predominance of prolonged cold perspirations, which sometimes last for several days, attended with faintness, and cold livid

since the *pathology* of fever has been more distinctly brought to light, by the labors of Bailly, Jackson, Broussais, and Andral, that we have been led to distinct views, and correct treatment, of those pernicious remittent fevers, which even with the most careful and prompt employment of the best resources of art, are so often apt to terminate fatally.

extremities, while the head is hot. Thus, the milder form of the remittent fever which occurred at Calcutta and its vicinity during the autumn of 1834, exhibited but a faint type of the more violent disease which raged in this neighbourhood from the middle of July to the end of October, 1833, the lamentable consequences of which will be long remembered by many of the survivors of this community, whose friends were among the victims of that destructive endemic.

The remittent fever of the Bengal rainy season, ranks among the most formidable diseases of India ; while it lasts, the patient can scarcely be considered free from danger, though he may not appear to suffer much, and there may be no symptom of violent re-action. It sometimes happens, that after two or three slight paroxysms, a change for the worse suddenly takes place, without any evident cause ; and death follows within an hour. These unfavorable changes are most liable to occur towards the conclusion of a paroxysm, and they have rarely happened before mid-day.

The commencement of Remittent Fever is generally marked by languor, oppression at the præcordia, debility, and that peculiar combination of weariness, pain, anxiety, and weakness, affecting the head and back of the neck, which Dr. Curry used to describe under the name of *febrile anguish*.

There is much diversity in the symptoms in different cases. In persons of delicate constitution, who have been long suffering from fatigue, privations, and the

inclemencies of the weather, while they have been indifferently fed, and much exposed to the influence of malaria, and in whom the disease has been preceded for several days, by debility and indisposition not distinctly febrile; we often find a weak and rapid pulse, the tongue is moist and but little loaded with grey mucus, occasionally it is quite pale and glazed; the conjunctivæ are pale, and the face sometimes assumes a lurid cadaverous color; the gums are livid, the head and chest, though hot at the time of the exacerbation, become soon covered with a cold perspiration; and the extremities remain cold for several hours at the termination of the paroxysm. The evacuations from the bowels are scanty and watery, often of a pale-grey color; but in some cases nearly black. The whole belly is often doughy and inelastic, and there is generally some tension and fulness at the epigastrium. The urine is usually pale.

In other patients, of robust habit, who have suffered less from fatigue, privations, and exposure, and in whom the disease is developed more rapidly; excessive re-action appears at the commencement of the paroxysm, there is intense morbid heat of the skin, flushed face, head-ache, and redness of the eyes during the exacerbation; and although these symptoms abate much at some periods of the day, there are many cases in which pyrexia is not entirely absent at any time during the 24 hours. The pulse is rapid and full; bilious vomiting often takes place, and there is pain and morbid sensibility on pressure over the epigas-

trium; which region and the hypochondria are tense, and the urine is high-colored. The evacuations from the intestines are scanty, watery, and dark colored; and active purgatives often bring away considerable quantities of black films, like fragments of dried leaves that had been steeped in water. Before active purgatives are taken, in this inflammatory form of remittent, the tongue is usually dry, and much loaded with brown or yellowish mucus. Vertigo is often a distressing symptom; and delirium frequently occurs, sometimes even at an early period of the disease. Intense yellowness of the whole body very frequently takes place in the worst cases.

The exacerbations commence most commonly at 11 A. M., or at 9 P. M., but the hours of accession vary, and sometimes two paroxysms take place in the course of 24 hours. It is necessary to remember this, for I have known a medical man attend a patient regularly morning and evening for several days, without being aware that there was a severe exacerbation half an hour after mid-day, and another half an hour after mid-night. The patient was cool when visited, and therefore very little medicine was given, and no decisive treatment was followed: but as soon as the nature of the case was ascertained, the disease was quickly cured by active purgatives, a few leeches to the epigastrium, just when the exacerbation was violent; and some Sulphate of Quinine in the succeeding intervals.

The patient is usually found weak and languid early in the morning ; but by $\frac{1}{2}$ past 10 o'clock A. M. redness of the eyes and anxiety are observed, the urine becomes scanty and dark colored, the tongue dry, and the skin hot ; a gradual increase of morbid heat and pyrexia are progressive until about 12, or from that hour till $\frac{1}{2}$ past 2, P. M. The heat then remits, the secretions become more free, and the patient seems relieved. In very severe cases, after the second or third paroxysm ; each decline of the fever, which occurs from 12 to about 4 o'clock, is followed by profuse perspiration, lowness, and coldness, attended with a torpid state and a tendency to stupor in some cases, and extreme apprehension of some impending evil in others. At the conclusion of the fourth or fifth paroxysm, and sometimes earlier, some patients continue to get colder and weaker, until they die. I have known cases where a single paroxysm has proved fatal in this way, in delicate persons, who have suffered much from fatigue and privations. In the more intense forms of this disease, there are two periods of each paroxysm fraught with danger ; one is during the increase of morbid heat, when febrile excitement and high arterial action exist, and there is then tendency to fatal congestion and effusion into the structure of the brain or other important organs. The other period of danger, is at the conclusion of the paroxysm, when morbid excitement and high vascular action have ceased ; when the capillaries appear

generally relaxed, and in a state of inaction, and languor and debility prevail: in some of these cases the patient gradually sinks into a state which bears some resemblance both to the collapse which succeeds the low form of Cholera, and to syncope; and, the coldness continues till the patient dies, as above stated.

The closest attention to clinical observation, as well as the result of post-mortem examinations, convince me that remittent fevers in Bengal are invariably connected with local congestions; which often run rapidly into inflammation, attended with much interstitial effusion. The seat of these local affections is found principally in the stomach, intestines, cellular structure about the duodenum, and at the root of the mesocolon, more especially where it passes across the spine: the principal disease is also often found in the spleen, liver, brain or lungs. There is a vast diversity in the relative degree to which the local affection extends. Sometimes the brain and stomach seem almost exclusively affected; in other cases the spleen, intestines, and lungs; and in others the liver. It occasionally happens that the part shewing evidence of being most seriously diseased at first, becomes afterwards less affected: the principal morbid condition appearing in some organ not originally much disordered. Gastro-enteritis occurs frequently in severe cases of remittent fever, in those plethoric subjects who are used to high living and much wine; but acute inflammation of the

liver is rare, except in robust and young Europeans who have recently arrived in this country. Towards the decline of the fever, enlargements of the spleen and their corresponding constitutional disorders are frequently observed in debilitated patients.

The most remarkable circumstance connected with this form of fever, (the remittent,) is the extreme degree, but transient nature of the determination of blood to the head. Although the paroxysm is in general not of long duration, the effect of each return of pyrexia is usually evident in the more severe cases, each paroxysm marking its effects by a more permanent visceral disorder than previously existed, and being followed by more decided prostration of strength.

That feature of the remittent fever, which it is most important to point out to strangers in India; is the rapidity with which changes take place, both in the disease, and in the powers of the patient's constitution; even in the course of one paroxysm: for the treatment, which if employed at an early stage of the accession; say, for instance, at 10 or 11 o'clock A. M., would be judicious, and afford not only immediate relief, but tend greatly to moderate the violence and alter the character of succeeding paroxysms of the disease; if employed later in the paroxysm, for example, at 2 or 3 P. M. on the same day, would be liable in many cases to destroy the patient in two hours, nay, sometimes in a few minutes. I allude particularly to the use of V. S. and leeches; which are our best remedies, when em-

ployed at proper times, as will be presently shown. It is therefore necessary, for the purpose of directing the treatment of these cases successfully, not only to look to the existing stage of the disease; but to be prepared with a knowledge of the changes that are likely to take place in the course of the paroxysm: and to know that repeated returns of the exacerbation, are apt to induce those effects on the constitution, which render the propriety of depletion more doubtful; not in consequence of the subsidence of local disease, but from the lowered state of the vital power, and the proclivity to abrupt changes and sudden prostration of strength, with fatal collapse, which then frequently takes place.

In the treatment of the remittent fevers of Bengal, we depend chiefly on active remedies, at the commencement of those forms of the disease, which come on abruptly in plethoric persons, and are attended with signs of local inflammation, and high arterial action; for life often depends on the management of a single paroxysm, by the judicious employment of the lancet, a purgative and 2 or 3 large doses of the sulphate of quinine. In the most severe cases, it is requisite to bleed in the early stage of the first or second paroxysm, after that, we must be more cautious; but at any period, when the pyrexia and arterial action are increasing, and we have reason to believe, that there will be some time before the exacerbation reaches its acme; it is always safe and useful to apply a few leeches to the head or epigastrium,

whenever the predominant symptoms of local inflammation may indicate their necessity, at the commencement of the fifth or sixth paroxysms, or even later.

In ordinary cases of the remittent fever of the rainy season, the desired effect is almost always produced by one bleeding; after which the application of leeches to the head or epigastrium, at the time of the day when the morbid heat is increasing, is found sufficient to remove local congestion. At the same time we must remember that the abstraction of blood is to be regulated by its effect on the disease, rather than by any absolute rule either as to the quantity taken, or the frequency of its repetition.

The abstraction of blood at the commencement of the first or second exacerbation of severe cases of remittent fever, is almost always very beneficial; it seems to insure an early convalescence and safe termination of the disease: but at later periods, unless its employment be indicated by a high degree of arterial action or distinct symptoms of local inflammation, blood-letting is a doubtful remedy; and although I have occasionally met with cases in which V. S. was requisite on the 8th or 9th day, and have once used that remedy with success so late as the 15th day of remittent fever, I am anxious to state my opinion, that the free abstraction of blood at so late a period requires the utmost caution, and even in those cases where nothing else can save life, there is much hazard in using this most powerful remedy. When it is requisite at a very late period of the disease, the

patient must be carefully watched, and every accessory remedy, (such as the early use of quinine, and judicious administration of food and wine,) must be used in proper time. In these cases life depends quite as much on promptitude and discrimination in the administration of these important adjuvants, as on the previous depletion by which they are rendered admissible and efficacious. The remote benefit, which is derived from V. S. at an early stage of these fevers, is very important, as permanent visceral disease and obstructions, are rare in those who are bled soon after the accession of the fever.

After the pyrexia has gone on increasing for 2 or 3 hours, and we know that the exacerbation has arrived at its maximum, and will presently decline, the utmost caution is requisite in the use of the lancet or in the application of leeches : and when the pulse becomes softer, and the skin is perspiring freely, while the secretions begin to flow, and febrile action is subsiding, we must rest satisfied that the period when we can safely employ depletion is over, and that we must desist from blood-letting during the conclusion of this paroxysm. I fear that patients have been lost from inattention to this circumstance, namely, the danger of bleeding or of applying leeches at a time when the pyrexia is abating, and when morbid action is rapidly subsiding into a state of collapse and prostration. The free abstraction of blood is then found to be dangerous, and has actually proved fatal. The effect of a fatal termination of this sort, namely, the inconsider-

ate employment of V. S., at an improper stage of the paroxysm, is apt to bring discredit on blood-letting and those active remedies, on the judicious employment of which, in the majority of severe cases, life depends. The error of a misapplied bleeding, inducing the greater and more frequently fatal errors, dependent on want of confidence in a remedy which, when judiciously employed, proves to be of the first utility.

I would here wish particularly to notice the importance in all cases of remittent fever, where blood-letting is requisite, to let the patient be bled in the recumbent posture, and if possible to avoid inducing faintness. Bleeding *ad deliquium* is considered exceedingly injudicious practice in the remittent fevers of this country; in slight cases it is unnecessary, and in severe cases, we find that whatever induces fainting, is found to have an unfavorable influence on the condition of the patient. It is also requisite in the low cases, to prevent the sick from rising to stool, as that is apt to induce faintness towards the termination of a paroxysm, when profuse perspiration has taken place, and tendency to collapse is impending.

When there is much anxiety and prostration of strength, with sense of exhaustion and sinking at the præcordia, on the subsidence of a paroxysm, or at any other period of the disease; the application of a sinapism to the epigastrium for an hour, is in general attended with the utmost benefit; and I would not advise this remedy to be reserved for desperate

cases only, but recommend its application quickly on the symptoms of sinking appearing. In those cases where the paroxysm ends with a profuse cold perspiration, and exhaustion, it is often of great service to apply a plaster of European flour of mustard for a whole hour to the region of the stomach ; for the purpose of fixing an *external* irritation there, which shall be permanent for several days. The plaster should be made by mixing the flour of mustard with hot water, so as to form a thick paste, without the addition of meal, bread, or any other ingredient.

At the same time with bleeding, active cathartics are requisite, and are to be repeated according as the urgency for general depletion may be indicated by symptoms of local inflammation, or high arterial action. Purgatives will be required repeatedly, for plethoric subjects who have been recently affected with Remittent Fever. In weak and delicate persons, who are suffering from the low and insidious form of the disease, much caution is requisite ; and even in the inflammatory forms of the remittent fever, when the disease has been protracted, we can at late periods only employ mild aperients and enemata, for the purpose of carrying off the contents of the intestinal canal.

The benefit that may be derived in many cases from the employment of large doses of Calomel, seems to be proved by the opinions of the most observant and best practitioners in India. I allude to the scruple dose of Calomel given at bed-time, followed by an active cathartic on the next morning. However,

in many cases, frequent repetition of large doses of mercury in any form, is totally unnecessary at an early stage of the disease, and I have not very often found it requisite to give above two doses of 20 grains of calomel, and one or two doses of 10 grains, even in very severe cases. With respect to the necessity of inducing salivation, I admit that in some cases, where there was evidence of considerable effusion in the brain, I have seen a favorable change take place just before salivation appeared ; and others, where the improvement followed the salivation: the benefit in each was ascribed to the mercury. It must be acknowledged, that there is a satisfaction in these very severe cases, to find the ultimate effect expected from the medicine produced ; as well as to ascertain that the constitution is susceptible of the mercurial action, which it is not in many bad cases. The benefit of salivation is however problematical. The sentiments expressed in the first volume of this work, at pages 452 and 479, render it unnecessary for me in this place, to urge the importance of avoiding the use of mercury, in cases where the spleen is enlarged or diseased.

In every description of Remittent Fever, we must watch the changes which take place ; and when the pyrexia abates, we must be prepared promptly to administer the Sulphate of Quinine, for the purpose of preventing a return of the exacerbation. In most cases where the cerebral symptoms are not urgent and continued, the efficacy of this remedy is undoubt-

ed. When local inflammatory symptoms predominate in plethoric subjects, we have other important objects to fulfil; but even in those cases, a few small doses of Quinine given in solution, during the stage of remission or apyrexia, frequently alter the character of the malady, and enable us to subdue the local disease with greater ease.

When we are first called to see a bad case, in the absence of the exacerbation, and find that the patient has had several returns of the paroxysm, from which he is very low and exhausted, it is often justifiable to administer Quinine before using purgatives; for in some of these instances, when the disease exists in its more intense degree, we can often administer 2 or 3 large doses of Quinine at short intervals, before the accession of the paroxysm, so as to anticipate and prevent its return; whereby the dangerous consequences liable to occur from effusion or inflammation at the commencement of a paroxysm, or from collapse at its termination, may be all avoided: in fact, during the existence of a malignant Endemic remittent fever, we may often say, that, to arrest a paroxysm, is to save the patient's life. In the less severe cases, there can be no doubt that the prompt exhibition of the Sulphate of Quinine, by arresting the recurrence of the paroxysms, may sometimes prevent those visceral diseases, and the impaired state of constitution, with debility, which are often found in protracted cases. When purgatives are deferred, for the purpose of administering the Sulphate of

Quinine, Enemata may be given, if they be requisite to clear out the intestines before the period when re-action usually commences.

Those cases of remittent fever that are less distinctly marked, and come on slowly, claim the utmost diligence of the practitioner; and the moderate use of the lancet, with leeches, followed by mild but effectual purgatives, is in general requisite. For in these slow and insidious cases, almost every function of the system becomes embarrassed; and in most instances, there is at the same time both congestion and inflammation in various organs, co-existent with great prostration of strength. Then mild purgatives and Quinine, are our principal remedies, and may be employed with confidence; in the same degree that in the more distinctly inflammatory shades of the disease, we trust almost solely to free and repeated depletion.

Tranquillity in the recumbent posture must be observed in all cases: and after suitable depletion, some barley-water or thin gruel should be given twice a day. A limited supply of farinaceous food is requisite sooner in remittents, than in cases of inflammatory fever, where an equal degree of re-action has been manifest. In many *protracted cases*, we are obliged to give a small quantity of wine in the gruel, once or twice in the day, although we may be satisfied that it will be necessary to apply more leeches on the next exacerbation of the fever; and even in *some recent cases*, we find the patient

so cool, pale, and exhausted, with a pale, moist, and swollen tongue, and weak pulse, (on the complete recession of the pyrexia,) that a small quantity of wine in sago may be given with advantage. The propriety of giving some wine is less to be doubted, where there is profuse perspiration with coldness of the extremities, and when the action of purgative medicines is prolonged to the conclusion of the febrile paroxysm :—in such cases, it is requisite to enjoin the patient to take also, 2 or 3 spoonful of thin arrow-root or barley-water, immediately after each stool. To conclude this general detail of the treatment of Remittent Fever, I know of no disease, requiring more promptitude and decision at its commencement, or more discrimination and discretion in the management of its several stages.

CASE CLXVI.—W. Woods, *Æt.* 18 ; a muscular but rather thin lad : has been ill three days with fever, not preceded or attended by rigor. The exacerbation has commenced daily at 9 o'clock A. M., and he has been exceedingly hot, restless, and anxious by noon ; soon after which a profuse perspiration has taken place, and continued till about 5 P. M. He has very little rest during the night, and towards morning, the skin becomes dry. Purgatives have been taken in the Fort. He was admitted into the Hospital at noon on the 2nd of October, 1833, being then very hot, and having a flushed face, full pulse, extreme anxiety, a dry tongue, and intense head-ache. The head was shaved, and he was bled to $\frac{3}{4}$ xii. ; a pur-

gative enema was ordered, and he took two pills containing

Calomel. \mathfrak{z} ss. Extract. Colocynth. Comp. gr. vi.

Vesper.—He has been purged twice: the blood drawn in the morning is not buffy, the cruor is of a dark color, and soft; the pyrexia has subsided, and he does not appear to suffer much, except from anxiety; the skin is now perspiring. Two pills were ordered to be repeated, as in the morning.

October 3rd.—He has been purged three times, and he did not sleep a quarter of an hour during the night; his skin is now (at 6 A. M.) very hot and dry; his tongue is dry, and nearly clean; and he suffers much from head-ache.

V. S. ad lb. i.

R. Calomel. \mathfrak{z} ss. Pulv. Antimon. gr. iv.—misce, to be taken at 9, and repeated at noon.

Vesper.—The blood is not buffy. He has had two free stools of dark color, and feculent; considerable morbid heat remains; the tongue is rather more covered with grey mucus. Calomel and Antimonial powder were repeated, as in the morning.

Oct. 4th.—He slept little, and is much cooler this morning; still his face is flushed; the tongue is dry, and the pulse frequent, but not full nor hard.

R. Infus. Sennæ Comp. $\frac{3}{4}$ i.—Sodæ Sulphatis—

Magnesiæ Sulphatis—Mannæ aa $\frac{3}{4}$ i.

Quininæ Sulphatis gr. iv.—misce.

To be taken at 6 A. M.—and four grains of Quinine in solution, to be repeated at 9 o'clock.

Vesper.—He has had six watery stools, of a reddish-brown colour; there was an exacerbation at noon, and some morbid heat of the head remains, with much anxiety, but little head-ache.

Apply two leeches to the temples.

R. Pil. Hydrarg. gr. xii. h. s.

Oct. 5th.—The morbid heat and pyrexial symptoms all abated in the early part of the night; his tongue is now clean and moist, and there is only a slight degree of heat of the forehead at present.

R. Pil. Hydrarg. gr. xii. at 7 A. M.

Two grains of Sulphate of Quinine in solution to be given at 7, and repeated at 10, o'clock A. M.

Noon.—An exacerbation has now come on, attended with a full and strong pulse, and much heat of the forehead.

V. S. ad lb. i. statim.

Enema Purgativ.

Vesper.—The blood is not buffy, the cruor is dark colored, and the serum has separated in small quantity. He is now cool and perspiring; the pulse soft and regular, the bowels are free.

Four grains of Sulphate of Quinine to be taken in solution at 6 P. M., and repeated at 9.

Oct. 6th.—He slept two hours, and appears to be better. The tongue is moist, and little coated with white mucus, and he is cool, and the skin moist. He has been allowed only tea, bread, and sago up to this date; some wine is now ordered.

Four grains of the Sulphate of Quinine to be given at 7, 8, and 9 o'clock.

Vesper.—There has been no return of fever this day. His bowels are regular.

R. Pil. Hydrarg. gr. vi. H. s.

Oct. 7th.—No return of fever, he slept well, and is now cool and perspiring. Four grains of Quinine were ordered at 8, and repeated at 11 o'clock.

Pil. Rhei Comp. gr. vi. H. s.

One pint of milk added to his diet.

Oct. 8th.—No return of fever. Medicine repeated daily until the 19th, from which date he was ordered to take some Decoction of Bark daily in the morning, and 12 grains of Compound Rhubarb Pill every night, until the 28th, when he was discharged well. Chicken diet was only commenced on the 21st of October.

The exacerbations in this case were very violent, exhibiting while they lasted, all the characters of ardent fever; and the remissions were very distinct. The cerebral symptoms were so urgent that repeated use of the lancet was requisite. A dark colour of the blood, and the softness of the caogulum such as are above recorded, have been more frequently observed by me, in the remittents, than in any other description of fevers in this country. Notwithstanding the violent arterial re-action and ardent heat of skin which took place at the time of the exacerbations, the blood did not exhibit the buffy coat. The paroxysms only abated after the repeated abstraction of blood, followed by Quinine.

CASE CLXVII.—Charles R. Jeffries, *Æt.* 12; a delicate lad, born in Bengal: has been ill for three days with fever, the exacerbation of which takes place at mid-night, and then he is delirious; the remission from 10 A. M., to 2 P. M. Admitted into the Hospital at 7 A. M. on the 13th of July, 1834, there is now not much morbid heat; pulse 132, the tongue is white, moist, and nearly clean, the belly is soft and elastic, and pressure at the epigastrium causes pain.

He has been purged by Jalap and Senna; and had leeches to his temples.

Apply three leeches to the epigastrium at 7 A. M. Let the head be shaved;—and at 10 o'clock, ten grains of Calomel are to be given.

One grain of the Sulphate of Quinine ordered at 10, 11, 12, and one o'clock.

Vesper.—He is cooler, but has slight head-ache, and has had one dark, watery stool; the Quinine repeated at 6, and two grains of Calomel with as much Antimonial Powder at 9 P. M.

July 14th.—He had two watery stools since the last report. Fever returned at mid-night, not preceded by rigor, and he was delirious more than half the night, calling often for drink. His body and limbs are now rather cooler, and he is more tranquil, but very weak and pale: some morbid heat of his forehead remains.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. āā gr. vi.—misce fiant pil. ii. to be taken at 6 A. M.

One table-spoonful of the weak solution of Tartarised Antimony to be taken every second hour, with the same quantity of Lemonade.

Vesper.—A violent exacerbation of fever took place at noon, and he remains now very hot and delirious. He has had no stool since day-light.

R. Calomel.—Pulv. Ipecacuanhæ āā gr.v.—to be taken in Syrup immediately, and let a Purgative Enema be given.

July 15th.—He soon vomited the medicine last evening, and with it a lumbricus. He has been often purged in the night, and had no sleep; he is now pale, and the skin is cool; he appears very anxious and restless, and is moaning incessantly, but says he has no pain. The tongue is moist, white, and rather dry.

Apply a sinapism to the epigastrium for one hour, and let him have an enema of Tinct. Opii 3 ss. with one ounce of water; which is to be retained in the intestine by pressure on the nates with a towel. Two grains of Quinine in solution ordered at 7, 9, and 10 A. M., and to be repeated at 4 and at 9 P. M. A very small quantity of sago with wine four times in the day.

July 16th.—He had no exacerbation yesterday, or last night; he slept very little during the night, and has had no stool; his head is now hot.

R. Pulv. Jalap. Comp. gr. xv. at 6 o'clock A. M., and let him have a Purgative Enema.

Two grains of Sulphate of Quinine at 10 o'clock A. M.

Vesper.—The heat of the forehead gradually increased towards noon, and by 3 P. M., he was very

hot, restless, and anxious, and remains in that state now; but he is pale. A purgative enema was ordered, and Calomel. ss. —Pulv. Antimon. gr. iv. to be given in syrup.

July 17th.—He had a restless night, but was not delirious; he had two dark watery stools, and is now cool, but not perspiring.

Enema Purgativ. at 7 A. M.

Two grains of Sulphate of Quinine at 7, and repeated at 10 A. M., and at 6 o'clock P. M.

Vesper.—No return of fever in the day. Quinine repeated at 8 P. M.

July 18th.—He slept, and had no paroxysm in the night; but there is a little morbid heat at present.

R. Calomel. gr. v. P. Jalap. Comp. gr. xv.—to be taken in Syrup at 6 A. M.

Two grains of Sulphate of Quinine to be given at 10 o'clock, A. M., and repeated at 6 P. M.

Vesper.—Purged four times, and he is cool; there has been no exacerbation this day. Two grains of Quinine at 8 o'clock P. M. and repeated at 10.

July 19th.—He slept and had no return of fever; tongue clean and moist. Bowels once moved in the night. Treatment repeated daily, as on the 18th.

July 21st.—He is convalescent. Let him have 15 grains of Compound Powder of Jalap every morning at 7 A. M., and two grains of Sulphate of Quinine at 10 A. M. daily. He was discharged on the 28th July.

The paroxysms were as strongly marked in this instance, as in the former case; and the cerebral symptoms were violent: but from the delicate constitution

of this lad, the extreme paleness of his face, and the previous free application of leeches, it was not judged proper to use blood-letting from the arm. The solution of Tartar Emetic appeared to be useful during the exacerbation, but his cure was ascribed to mild purgatives and Quinine. In both the foregoing cases, convalescence from fever was complete, and attended with no remaining visceral affection.

CASE CLXVIII.—John Lawson, aged 52; a thin man, of delicate constitution, 24 years in India; was attacked with fever on the 21st of September, 1833, in consequence of exposure for a few minutes to the sun. For four days he was feverish, but attended to his office business, and took some Castor Oil daily. On the 25th and 26th, he was very hot from 9 o'clock A. M., until noon, daily, and perspired very freely in the afternoon. As his complaints were becoming worse, I was requested to see this patient on the 27th of September, early in the morning. He had passed a restless night, with much morbid heat, and head-ache; and when I saw him, the pulse was frequent and hard, the head was very hot, the face flushed, and the tongue much loaded with pale-grey mucus: he was suffering from much anxiety, head-ache, pain in the loins, and thirst.

A vein was immediately opened, and 18 ounces of blood drawn from a free orifice, which quickly moderated the heat of skin, lowered the pulse, and produced a slight perspiration on the forehead. He was ordered to remain quiet, and to take 12 grains

of Compound Extract of Colocynth, with six grains of Blue Pill. A weak solution of tartarised antimony was ordered to be taken every second hour, and no food to be used but tea and an ounce of bread twice a day.

Vesper.—He is free from fever, and is now perspiring; at present there is no complaint but languor; the tongue is moist, and coated with white mucus. He has been freely purged twice. The solution of tartar emetic is directed to be continued.

September 28th.—He slept tolerably, and is free from pyrexia; the tongue is moist, but still much coated with white mucus. Three pills to be repeated as yesterday.

Vesper.—A violent exacerbation of fever, not preceded by rigor, took place at 10 o'clock A. M., and the morbid heat continued to increase till nearly 3 o'clock P. M., when a profuse perspiration came out over the whole body and extremities; he then gradually became cool. During the exacerbation, the solution of Tartar Emetic was repeated every second hour, and at 6 P. M. he was ordered to take four grains of Quinine in solution, and to repeat the dose at 8 and 10 o'clock P. M.

Sept. 29th.—He slept but little last night, and awoke quite cool this morning. No stool since yesterday morning. Four grains of Sulphate of Quinine in solution were ordered to be taken at 7, and repeated at $\frac{1}{2}$ past 8, and at 10 o'clock.

Vesper.—Great anxiety, restlessness, and a slight degree of morbid heat came on at $\frac{1}{2}$ past 10 o'clock, and continued for two hours. The pulse was very rapid and weak; he felt a dull pain at the epigastrium, and has suffered from deafness and a sense of noise in the ears.

Let him have two grains of Quinine at 5, 7, and 9 o'clock this afternoon, and at 7 and 9 to-morrow.

A purgative Enema was ordered at noon, which afforded but little relief. Three pills were repeated at bedtime, as ordered on the 27th.

Sept. 30th.—He was purged freely twice, and is now cool, weak, and desponding.

Quinine repeated as above.

October 1st.—Bowels free, no return of fever yesterday.

Medical treatment repeated.

Oct. 2nd.—He is improving slowly. Treatment repeated daily.

Oct. 8th.—Convalescent but weak. Bowels costive.

Extract. Colocynth. Comp.—Pil. Rhei Comp. āā gr. vi. every evening. Four grains of Quinine daily at 8, and 11 o'clock.

Oct. 14th.—Well.

The omission of Quinine during the remission on the evening of the 27th, and morning of the 28th of September, was decidedly an error in the treatment of this case; it is probable that two doses of the Sulphate of Quinine on the afternoon of the 27th, and 3 more doses, at short intervals, on the morning of the 28th, might have prevented the return of the

violent paroxysm which occurred at 10 o'clock A. M. on the latter date, and was followed by an indistinct exacerbation on the 29th.

CASE CLXIX.—V. Francois, Æt. 32, Captain of the French Ship *L'Amiral Hugon*, was admitted into the General Hospital on the evening of the 28th September, 1833. Having suffered for 15 days from remittent fever, with predominant cerebral affection; the exacerbations more violent on alternate days. He has had a severe paroxysm this day, but is now cool and perspiring. His bowels are free, and his present appearance is that of complete convalescence.

Four grains of Sulphate of Quinine were ordered to be taken at 7 P. M. and repeated at 10 o'clock.

September 29th.—He slept, and is now warm and tranquil; he had two stools in the night. The Sulphate of Quinine to be repeated at 7 and again at 11 o'clock.

Vesper.—There is slight morbid heat of the head, and his skin is dry; but he seems much better. The bowels are very free.

R. Pil. Hydrarg. gr. xii.

Sept. 30th.—Head-ache came on towards midnight, and before the visit this morning he was exceedingly hot; the forehead burning and dry, the eyes red, and the face flushed; the pulse frequent, and rather full. He complains of thirst, but his tongue is moist and nearly clean.

V. S. ad lb. i. statim.

Head shaved.

R. Calomel. ʒ ss.—Extract. Colocynth. Comp. gr. vi. at 7 o'clock A. M. The body to be sponged with tepid water.

Vesper.—He is now perfectly cool, tranquil and perspiring, and has been purged freely four times.

Four grains of Sulphate of Quinine ordered at 5 o'clock P. M., and repeated at 7 and at 9.

October 1st.—He slept well, and is now free from pyrexia.

Sulphate of Quinine to be repeated in doses of 4 grains at 7, and at 11, A. M., and at 7 o'clock P. M.

Oct. 2nd.—He was cool and felt well last evening, but he has slept little, and the forehead is now hot, bowels not very free. His tongue is moist, pale, swollen, and nearly clean.

He was ordered to take one ounce of the Compound Infusion of Senna, with two grains of Sulphate of Quinine, at 7 A. M., and to repeat the Sulphate of Quinine alone at 11 A. M. and at 7 o'clock P. M.

Oct. 3rd.—He has had three stools, and is free from fever. He slept tolerably, but was distressed with constant dreams; the skin is now quite cool and perspiring.

Ordered to take 12 grains of Blue Pill every night, and the Infusion of Senna and Sulphate of Quinine repeated daily as on the 2nd.

Oct. 8th.—He now sleeps well; the forehead is cool, and he is free from fever, but weak. Chicken diet and a small quantity of wine allowed.

Four grs. of Sulphate of Quinine were administered in the morning, and he took six grs. of Blue Pill, and as much Compound Extract of Colocynth at night.

He had no return of fever.

The absence of all febrile symptoms was so complete on the day of admission, that we might have hoped this patient would have remained free from any return of the disease ; but the fever had been of too long duration, and the exacerbation which took place on the 30th at night, was attended with such violent arterial action that the patient was considered in great danger. Though the blood-letting at that time had a most decided effect in checking the violence of the disease, the indistinct febrile disorder on the 2nd of October, was attended with a degree of cerebral affection, which probably would have been much more violent, had the depletion during the previous exacerbation been omitted. The treatment prior to his arrival at the Hospital, had consisted of enemata, mild aperients, and diluent drinks ; with a few leeches, twice, to the temples ; means far too trivial to arrest so violent a disease.

During unhealthy seasons, and when the worst description of remittents are prevailing, we find many patients suffering from paroxysmal fevers, in all respects as violent and as dangerous as the cases above detailed : but there is a short and vehement rigor once in the day, followed by a stage of re-action and ardent pyrexia, which lasts for several hours, and then becomes much moderated, without any complete intermission of the fever ; from which the patient is never entirely free. After two, three, or four paroxysms commencing with rigor, the cold stage ceases to return, and the remissions become more indistinct,

without any diminution of the febrile exacerbation, which recurs once or twice in each day. If active depletion be omitted, a deep-yellow suffusion of the eyes and skin frequently takes place, and is attended with increased irritability of the stomach ; and the previous existence of a mercurial salivation, does not insure an exemption from the Jaundice. In the course of a day or two, the symptoms seem somewhat moderated, at the moment that the disease has actually made a fearful advance by the commencement of effusion into the structure of vital organs, whereby oppression and indifference, are substituted for pain, distress and restlessness. The effusion itself in some degree takes off the local morbid tension of the inflamed vessels ; and when it exists in the brain, it causes oppression, and not only blunts sensibility, but in some instances, seems to conduce to the decrease of morbid heat, and diminished action of the heart and arteries, without any change in the disease that can be considered favorable. The symptoms abating slightly, while the morbid changes are steadily in progress towards a fatal termination. It is in the prevention of the above train of events, that blood-letting is in the highest degree useful at an early stage of fever, and its place cannot be supplied by any other remedy. The lancet is more efficacious in averting that course of disease, than purgatives and salivation, and all the other remedies we possess.

The effusions into the structure of vital organs above alluded to, sometimes seem to coincide with a

most deceptive appearance of spontaneous subsidence of active pyrexia, and a decided change in the patient's condition ; which change is ultimately found to be of an unfavorable character, and it often proves the precursor of death. This remission, which deceives the careless and inattentive observer, is to the judgment of the experienced practitioner, the indication of an approaching fatal termination.

In those cases in which the effusion has taken place into the cellular structure about the duodenum, or at the root of the mesentery ; there is usually much anxiety and prostration of strength, with increased tumefaction of the belly, and sometimes vomiting. When cerebral effusions occur, there is more or less of stupor and indifference, although the patient often answers questions correctly, and says that he has no pain. He lies on his back with his limbs stretched straight, and slides down towards the foot of the bed ; the face is often pale, and the pulse slow and soft, or the cheeks are slightly flushed, and the pulse quick and weak. The pupils, if before contracted, are now dilated, and the morbid heat is decreased if not subdued. In the more advanced stages, the hands are often put forth to grasp some imaginary object.

When a patient is approaching the state above described, the only chance of saving life is by the free administration of mercury. If the patient be not already salivated, 12 grains of calomel, or the same quantity of blue pill are to be given three times a day, and if any degree of morbid heat remain, four grains

of antimonial powder are to be added to each dose ; besides which, the weak solution of tartarised antimony may be given in small quantities every hour. Morbid heat or pain at any particular part, at this stage of the disease, may often be alleviated by the application of 2 or 4 leeches near the part affected ; provided that extreme prostration do not forbid it. Indeed, the small number of leeches above specified, if applied while we go on with the mercury, will seldom do harm when there is local heat and pain. At this stage, if there be not a free stool once a day, it will be requisite to order an enema, or a small dose of Compound Powder of Jalap. But if there be little or no morbid heat, and a watery purging exist, it is often necessary to combine some small doses of opium with Hydrarg. cum Creta, and small doses of Calomel ; and to use mercurial ointment. Small quantities of Cream of Tartar and Sp. Æther. Nitr. added to the patient's drink, are sometimes of service, by acting as diuretics. In these advanced stages of fever, the frequent administration of purgatives is injurious, by preventing the due action of mercury ; and active purging is apt to bring on a tympanitic state of the belly, which must be regarded as most dangerous, when induced by purgatives at this stage of the disease.

The conditions above described, are liable to follow severe fevers at any season of the year, if those diseases be allowed to run their course, unsubdued by the lancet and active treatment, at an early stage.

CASE CLXX.—On the 24th of July, 1831, I was called in the afternoon, to see a man who was suffering from fever, which had commenced the day before, in consequence of fatigue and exposure to the sun. The disease was not preceded by rigor. A dose of Senna and Salts had been taken, and operated freely, but afforded no relief. The patient was 34 years of age, of middle size, but muscular; of active and temperate habits, and had resided eight years in Bengal, where he had always enjoyed good health. I found him exceedingly hot, and in a state of anxiety; the skin was dry; the pulse 116, and full: he suffered little from head-ache, but there was much tension and fulness at the epigastrium, and hypochondria; the tongue was moist and not much furred. He was immediately bled to 38 ounces; and ordered

Calomel. gr. xv.—Extract. Colocynth. Comp.

Extract. Hyoscyami āā. gr. iv. to be taken at bedtime, followed by infusion of Senna and Salts next morning.

July 25th.—The blood is buffy and cupped; his skin is dry and nearly cool; he is up, and fancies himself nearly well, but his manner is hurried; pulse 128 and weak; the tongue is dry, and not much loaded. The medicine is producing watery stools. Quiescence in bed was enjoined, and he was ordered,

Extract. Colocynth. Comp.

Pil. Hydrarg. āā gr. viii. at ten o'clock.

And Cream of Tartar in water, for drink.

Vesper.—The medicine has operated several times, evacuations feculent and dark-colored; urine red. The exacerbation has returned with considerable violence; and he now suffers from much anxiety, and sense of exhaustion; pulse 138 and small: there is extreme heat of the skin, and redness of the eyes.

Twenty leeches were applied to the epigastrium.

R. Calomel. \mathfrak{z} i.—Extract. Colocynth. Comp.

Extract. Hyoscyami āā gr. iii. at bed-time.

R. Pulv. Jalap. Comp. \mathfrak{z} i.—Aquæ Menth. Sativæ \mathfrak{z} i. to be taken at day-light to-morrow.

July 26th.—The medicine is operating freely, and he feels much relieved, but is very weak; anxiety has ceased, and the morbid heat of the skin is very much reduced. There is still a considerable fulness at the epigastrium, and hypochondria; the tongue is much loaded with yellowish mucus.

Vesper.—Anxiety and increase of fever began at 2 o'clock, and he is now very hot; pulse 112, and more full; the cheeks are flushed and the eyes red: there is much pain and sense of weariness round the loins; the urine is very high-colored.

V. S. ad. \mathfrak{z} xx.

Apply 12 leeches to the temples.

R. Pil. Hydrarg. gr. xii.—Pulv. Jacobi

Extract. Colocynth. Comp. āā gr. vi.

—— Hyoscyami gr. iv.—misce, fiant pil. iv.

Two pills to be taken at 9 o'clock, and two at midnight. Compound Powder of Jalap early to-morrow morning.

July 27th.—The purgative is now operating freely ; the evacuations are a very deep bronze-colored fluid. The blood taken last night is buffy ; the serum very yellow. The pyrexia was only slightly mitigated by the bleeding ; he had no sleep, and is now very hot. Pulse 118, and full, but not hard. The skin and eyes are of a deep yellow color ; still there is much fulness at the epigastrium, and severe pain round the loins.

V. S. ad. lb. iss.

Apply eight leeches to the epigastrium.

Vesper.—The blood is buffy, and its serum yellow ; he has less pyrexia than usual in the evening, and seems weak, but a slight flush of the cheeks remains, although he has been freely purged.

R. Pil. Hydrarg. ʒ ss.—Calomel. gr. viii.

Extract. Colocynth. Comp.

——— Hyoscyami āā gr. iv.—misce, fiant pil. iv.

Two pills to be taken at 9 o'clock, and 2 at mid-night.

July 28th.—He is cooler, and pale, but the fulness at the epigastrium is not removed ; pulse 98, and not weak ; he has now no head-ache ; the skin and eyes are still very yellow.

He was not yet sufficiently free from inflammatory symptoms to benefit by large doses of Quinine, and still it was thought advisable to order a small quantity of that medicine, which might enable him to bear the further depletion that was deemed requisite ; therefore, half a grain of Sulphate of Quinine was ordered in solution at 8 o'clock, and repeated at 9 A. M.—Ten leeches to the epigastrium at 1 P. M.

One ounce of Epsom Salts, a fluid ounce of Spirit of Mindererus, and 3 drachms of lime juice, were mixed with a pint of water, containing in solution, 1 grain of Tartar Emetic: a wine-glassful of this mixture was ordered to be drank every hour, after 1 o'clock P. M.

Vesper.—He has had several watery stools, of bronze color, there is very little pyrexia remaining, and he is now perspiring; the skin and eyes are less yellow; but the urine is very red.

R. Calomel.—Pil. Hydrarg. \overline{aa} gr. xii.

Extract. Colocynth. Comp. gr. vi.—miscè, fiant pil. vi.
Three pills to be taken at 8 P. M., and repeated at mid-night. A purgative of Jalap and Scammony early to-morrow.

July 29th.—The purgative has acted freely; and the fulness at the epigastrium is much lowered, leaving a handsome slope below the edges of the ribs, where there was previously much tension and fulness. The yellowness of the skin and eyes is decreasing. Gruel or sago allowed; he has heretofore only had tea and bread.

Ordered Pills of Compound Extract of Colocynth, Blue Pill, and Camboge, in the afternoon; and the purgative of Jalap with Scammony early to-morrow.

July 30th.—He is improving slowly; pressure causes pain at the region of the gall-bladder. He is free from anxiety or pyrexia, and slept well, but his skin is dry.

Apply 12 leeches over the region of the gall-bladder.
Medicine repeated as yesterday.

July 31st.—The yellowness of the skin is decreasing fast ; the bowels are more easily affected by purgatives, and his urine is paler.

A blister was applied to the epigastrium, and some mercurial ointment was rubbed over the right side of the chest and belly, for the purpose of promoting the absorption of the effusion and interstitial deposit, which are usually the result of severe congestion and inflammation, and which it was presumed had taken place in this case, and caused the induration and pain that at one time existed at the epigastric region. Mild purgatives were used daily, for some time longer ; and a sea-voyage completed his restoration to health.

This patient was a strong and active man, in whom extensive inflammation of the abdominal viscera was excited by fatigue and exposure to the sun. The anxiety, agitation, and symptoms referrible to the region of the epigastrium, on the 26th and 27th, somewhat resembled the state of the case detailed at p. 279, in which the disease terminated fatally by sero-purulent effusion on the surface of some of the abdominal viscera. Although the very active and repeated depletion by blood-letting was not borne well, some inflammatory symptoms continued to a late period, and were only subdued by the repeated application of leeches, and the employment of mercury.

When Jaundice takes place in those cases of Remittent Fever in which the stage of excitement is short, and followed by extreme lowness, anxiety,

profuse perspirations, and coldness of the extremities, the skin is usually of a pale, dull-yellow; and a livid color of the face is observed at the conclusion of the paroxysms, which portends much danger. We dare not then venture on such active remedies as were used in this case; and the patient's prospect of recovery is proportionally small.

CASE CLXXI.—George Brown, *Æt.* 13; a small and delicate boy, born in India: was attacked with fever and head-ache, on the 29th of July, 1831. There was some tumefaction and morbid sensibility on pressure over the region of the liver.

From two to four leeches were applied to the abdomen daily, and he was ordered 5 grs. of Calomel every morning, followed by Jalap or Castor Oil; but it was difficult to make his bowels act freely.

So slow and insidious was the progress of the Fever, that his illness was not considered very urgent until the 4th of August. I then found him suffering from much morbid heat of skin, and anxiety; the liver was enlarged, and his belly doughy and inelastic. Pulse 120. He had been purged twice on the 3rd.

V. S. ad 3 viii.

Ordered to take Calomel 9 ss. at 6 A. M.

Pulv. Jalap. Comp. 3 ss. at noon.

Vesper.—The blood is buffy*; he has been purg-

* A bluish film, that was not very tough, covered part of the eruo in the manner of the ordinary buffy coat of inflammation.

ed several times; the fever is much abated, and he is very languid.

R. Ext. Colocynth. C.—Pil. Hydrarg. āā gr. v. h. s.

August 5th.—He has been purged twice since day-light; there is less pyrexia, and the liver is smaller; the tongue is moist, and slightly coated with grey mucus in the centre. Pulse soft.

Apply two leeches to the region of the liver.

R. Pulv. Jalap. Comp. 3 ss. at 6 A. M.

Oleum Ricini 3 ss. at noon.

Vesper.—He has had five watery, dark-brown evacuations. There is an increase of pyrexia this afternoon, and more heat of the head than of any other part. He is suffering from anxiety; pulse 122, and rather full: the eyes are watery, and the tongue is in the same state as reported in the morning.

Apply two leeches to the temples.

R. Calomel. 3 ss.

Extract. Colocynth. Comp.

Extract. Hyoscyami āā gr. ii. in two pills, at bedtime.

August 6th.—The leeches bled freely; and he had two watery, copious, dark-brown stools in the night. The pyrexia is moderated; he is pale, and the face is rather livid. There is very little morbid heat of the head; pulse 118 and soft; the tongue is moist, pale, and slightly coated with grey mucus in the centre.

Apply a small Caustic Blister to the Epigastrium.

Half a grain of the Sulphate of Quinine in solution was ordered at 7, and repeated at 9, o'clock A. M.

Calomel and Compound Extract of Colocynth, each four grains, were ordered at 11 A. M., and repeated at 1 P. M.

Vesper.—He remained cool all day. Pulse 116; the color of his face is less livid, but the bowels have not been freely open.

A Purgative Enema was ordered, and one dose of pills repeated.

August 7th.—He had one greenish stool after the enema, and slept; there is slight fulness in the region of the liver, but the belly is soft and elastic; pulse 108, and soft; the tongue as before. There is slight morbid heat of the head; the rest of the body is cool and dry.

R. Extract. Colocynth. Comp.

Pil. Hydrarg. ãã gr. v. at 6 A. M., and repeat at noon, and at 3 P. M.

A purgative Enema was ordered at 10 o'clock A. M.

Vesper.—Morbid heat of the head, with quickened pulse, took place about noon, and continued to increase; he is now anxious and restless; the skin is dry; pulse 112, the edges of the tongue are moist, but its centre is dry.

The pills were repeated at 8 P. M., as he had not been freely purged.

August 8th.—The medicine operated three times; he slept, and is better, and cool; pulse 96; tongue moist and nearly clean, the countenance is clearer, and the gums are little affected by the mercury.

R. Infus. Sennæ Comp. ʒ v. Magnesiae Sulphatis ʒ ss.

Infus. Gentianæ Comp. ʒ i.

Tinct. Gentianæ Comp. ʒ i. Quininæ Sulph. gr. iii.

Acid. Sulph. Aromat. ʒ ss.—misce. Ordered to take ʒ i. every two hours, till he shall have been purged four times.

There was no subsequent return of fever. He was ordered to take purgative pills every night, and the above mixture was repeated four times on the 9th of August; and twice each day afterwards. He was pronounced well on the 16th.

The two next cases were very severe, but in consequence of the existence of tumid spleen, I did not consider it expedient to administer Calomel freely to these patients.

CASE CLXXII.—H. L. Mitchell, aged 8 years; an unhealthy-looking boy, born in India, and always residing near Calcutta, was attacked with fever not preceded by rigor, on the 10th of July, 1834. On the evening of that day he perspired freely, and slept but little during the night: on the morning of the 11th, he appeared to be well, but was thirsty and did not eat his breakfast. About noon fever returned with greater severity than before, but again subsided in the afternoon, and he had no sleep all night. A dose of Castor Oil was given this day, which operated freely, but did not prevent the return of the fever at mid-day on the 12th, and he then became delirious for several hours. A dose of 6 grains of Calomel was given, which operated on his bowels, but the heat of skin remained all night, and about 11 o'clock on the

13th a great increase of fever took place, with extreme heat of the head, redness of the eyes, and delirium; therefore he was brought to the Hospital at 4 o'clock P. M. His head was then very hot, the tongue dry and coated with greyish fur, the pulse frequent and strong, and the spleen was enlarged.

His head was shaved, and two leeches were applied to each temple.—A purgative Enema was administered, and a table-spoonful of the weak solution of Tartar Emetic was given every hour.

July 14th.—There was less morbid heat than usual during the night, he slept tolerably, and had three free stools. He is now tranquil and there is very little morbid heat of the head, but he is not perspiring; the tongue is moist, and much coated with grey mucus; no food allowed, but tea in small quantity.

R. Infus. Sennæ Comp. $\frac{3}{4}$ ss. Magnesiae Sulphat. 3 i. misce. To be taken at 6 A. M.—Let him have two grains of Sulphate of Quinine at 9, and repeated at 11, A. M.

Vesper.—He has been very restless all day, and had only one scanty, watery, brown stool. An increase of fever took place at a little before 11 o'clock A. M., and at noon he was excessively hot, and quite delirious. The morbid heat of the skin was not decreased by 6 o'clock in the afternoon, although he had taken the solution of Tartarized Antimony every hour, from 12 o'clock. He was then ordered to take 10 grains of Ipecacuanha, with half a grain of Tartar Emetic, in half an ounce of water; and a purgative Enema was given.

July 15th.—He had one stool about 10 o'clock last night, but did not vomit after taking the emetic potion. He slept nearly all night, and is now quite as cool as any healthy child. The tongue is moist and much loaded with white mucus, the pulse 84 and soft. The spleen remains large.

Two grains of the Sulphate of Quinine in solution, were ordered at 7, and repeated at 9, and at 10, o'clock A. M., and at 4 and 9, P. M.

A purgative Enema was administered at noon.

July 16th.—His bowels were freely moved by a purgative Enema at noon yesterday. He passed the whole day without fever, and slept tolerably till 3 o'clock A. M. this morning, since which there has been some morbid heat of the skin, but no delirium, and his tongue is cleaner.

R. Pulv. Jalap. Comp. gr. xv. at 6 o'clock A. M. and let him have a purgative Enema and 2 grains of Sulphate of Quinine at 10 o'clock, notwithstanding the morbid heat of the skin.

Vesper.—The purgative operated but slightly, and the dose of Quinine did not prevent the accession of a violent increase of fever at noon, but there was no delirium, and he is not now very restless.

A purgative Enema was given at 6 o'clock, and 4 grains of Antimonial powder at bed-time. A table spoonful of the solution of Tartar Emetic had been given every hour from mid-day, and it was ordered to be continued every hour till midnight.

July 17th.—He had two stools during the night, and slept well, consequently the antimonial solution was not given regularly.

Some heat of skin continued all night, and there is a very slight degree of morbid heat now, but he is perspiring; and desires to eat bread and milk.

A purgative Enema was ordered, and 2 grains of Quinine at 6, 8, and 10 o'clock A. M.

Vesper.—He had an exacerbation of fever at noon, and he is now hot and restless. The spleen is large.

The purgative Enema was repeated, the Antimonial solution is to be given every hour while he remains awake.

July 18th.—He slept tolerably, but morbid heat remains; and he is becoming weaker.

Apply 2 leeches to the spleen.

R. Pulv. Jalap.—Pulv. Rhei—Pulv. Zingiberis

Pulv. Calumbæ—Potassæ Supertart. āā gr. vi.

Ferri Sulphatis gr. i.—Quininæ Sulph. gr. ii.

Aquæ Menth. Sativæ 3 i. misce.

To be taken at 6 o'clock A. M.

Two grains of Sulphate of Quinine in solution, at 8, and 10 o'clock.

Vesper.—He has had two scanty stools. A very slight exacerbation occurred at noon this day, and he is now cool.

Let a purgative Enema be administered, and two grains of Quinine be taken in solution.

July 19th.—He was purged in the night, and has no pyrexia now; the tongue is nearly clean.

Two leeches ordered to the region of the spleen, and medicine repeated as yesterday.

July 20th.—No return of fever yesterday; he slept well, and he is now cool; the spleen is smaller. Bowels free. Medicine repeated daily as on the 18th.

July 22nd.—Convalescent. The purgative mixture to be repeated daily at 6 A. M. as on the 18th, and two grains of Quinine given at 10 o'clock A. M. daily.

July 24th.—The enlargement of the spleen has subsided, and he is improving daily. Quinine omitted. Other medicine continued daily.

July 28th.—He is discharged well.

This patient was in Hospital at the same time with the lad Jeffries, Case 167; they had both resided in the same house. Mitchell was treated without mercury, on account of an affection of the spleen; and his recovery was as prompt, and as complete, as Jeffries's, who used a considerable quantity of calomel. Both these boys were considered in a state of danger when they were sent to the Hospital.

A reference to the errors in the treatment of this case is of some importance, as the recovery was not as prompt as it would have been under a more correct treatment. The predominant local affections were in the head and spleen. Leeches should have been applied to the head more freely on the 13th, and repeated on the 14th, for the purpose of removing the cerebral congestion, and if four leeches had been put to the region of the spleen on the 15th, and a dose of the spleen mixture given, when he was in a state of apyrexia before noon on that day, it is probable that he would have avoided the distress and danger of exposure to repeated violent paroxysms of fever.

CASE CLXXIII.—Serjt. Macrea, *Æt.* 34, a tall thin man; has been 14 years in Bengal, and suffered

frequently from Fever. In 1821, he had severe Remittent Fever, and used so much mercury that nearly all his teeth were destroyed; the tongue and inside of the cheeks then became ulcerated, and the adhesions which followed, prevent his thrusting out the tongue or opening the mouth, except in a very slight degree; so that had the teeth not fallen out, there would have been great difficulty in putting food into his mouth. He was admitted into the General Hospital, on the 13th of September, 1830; suffering from Fever of five days' duration, which commenced with a rigor. There is now much morbid heat of the skin; the belly is very hot, and he complains of thirst and head-ache. Pulse 108, and rather small; as much of the tongue as can be seen is moist, but hot.

V. S. ad $\frac{3}{4}$ xx.

R. Pulv. Jalap. Comp. 3 i.

September 14th.—He was purged freely, and in consequence of the emptiness of the belly, an enlargement of the spleen can be now distinctly felt. He slept well, and all his symptoms are mitigated; but some slight heat of the head remains.

Apply 4 leeches to the temples.

R. Pulv. Jalap. Comp. 3 i.

Vesper.—The medicine operated five times: the pulse is now soft and weak; his skin is perspiring, and he is suffering from some anxiety.

Ordered to take 2 grains of Sulphate of Quinine in solution.

Sept. 15th.—The Quinine caused vomiting, and he has had a restless night; pulse 98. There is some morbid tension of the right rectus abdominis muscle, and slight fulness in the region of the liver.

Apply 12 leeches to the Epigastrium.—The body to be sponged with hot-water.

R. Calomel. gr. v.—Ext. Colocynth. C. 3 ss. at 6 A. M.
Pulv. Jalap. Comp. 3 i. at 10 o'clock.

Vesper.—The medicine has operated four times. He feels easier, and is cool.

R. Extract. Colocynth. Comp. gr. vi. H. s.

Sept 16th.—He is suffering from extreme exhaustion and debility; the countenance is sunk. He ascribes these symptoms to the Calomel, the early effects of which he recognises in the lowness and debility. There is still morbid heat both of the head and belly. He had two watery stools in the night.

Apply 4 leeches to the temples.—Let him take one ounce of Castor Oil at 6 A. M. and Pulv. Jalap. Comp. 3 i. at noon.

Vesper.—The medicine has operated freely, but there is still some tension and fulness of the belly, and especially in the region of the liver.

Apply four leeches to the right hypochondrium.

R. Infus. Sennæ Comp. 3 ii.—Tinct. Sennæ 3 i.
—— Gentian. C. 3 i.—Magnesiæ Sulph. 3 iii. misce.
To be taken immediately.

Sept. 17th.—He has been freely purged; the belly is cool and lax. Pulse 74 and soft. Fever ceased. Give half the dose of medicine ordered last night.

After this date, mild aperients, spleen mixture, and small doses of Quinine were requisite ; and attention to regulate the diet. He was discharged well on the 14th of October, 1830.

The lamentable effects of mercury in this man's case, many years before ; as well as the existing enlargement of the spleen, prevented my giving more than one small dose of Calomel, the effects of which were by no means satisfactory. I have in general found it better to treat Remittent Fevers attended with enlarged spleen, without any mercury.

CASE CLXXIV.—A gentleman, aged 29, of delicate constitution, who had been six years in Bengal, and followed an occupation requiring considerable activity in the open air, but not exposed to the sun ; found his health impaired soon after the rains began, in June, 1827, but he did not employ any medical treatment. In the beginning of July, he complained of being unusually weak ; but continued to attend to his business till the 12th, when he was very feverish, and took some purgative medicine, which operated freely, and in the evening he felt better : the fever ceased, and after eating some soup he thought he was nearly well. However, the fever returned every day, and continued from 11 A. M. till 2 or 3 o'clock in the day, not preceded by rigor. He was usually able to attend to business in the morning, though he felt very languid ; and when the fever came on towards mid-day, he took some purgative medicine. His residence was not

two miles from Calcutta, and on the 15th of July he came to town at about 10 o'clock A. M. for medical advice. On his arrival, the fever had commenced, his face was flushed, and he had slight head-ache with sense of soreness in the eyes ; his tongue was pale, smooth, and slightly coated with white mucus ; pulse 120 : he was suffering from much anxiety, and the eyes were watery, but not red ; pressure over the region of the stomach caused slight pain, and made him sick ; the whole abdomen was doughy and inelastic, but not tumid. He was in very low spirits about his own illness, apprehensive as to its termination ; and he thought the removal in a palankeen had brought on the fever rather earlier than usual. There was no desire for a great quantity of drink, but he was inclined to take a mouthful of water every ten minutes.

The necessity of quiescence and care for some days was explained to him ; he was advised to stay in Calcutta, and have some of his family sent for, to attend on him ; to which he was unwilling to assent. He remained in town a few hours, and took two Seidlitz Powders, and returned home. I was informed by his friend that in the evening he appeared as well as for some days before, but perspired more profusely, and said he was weaker. He passed a restless and anxious night, and complained of much oppression at the chest. On the 16th of July, the fever came on about the usual hour, and did not appear more severe than common ; on the contrary the

heat subsided earlier than on former days, but the perspiration was attended with unusual anxiety: he gradually became colder, then fell into a state of stupor, and died about 5 P. M. on the 16th of July, 1827.

This person had suffered very little from disease in Bengal; he resided the greater part of 1825 and 1826, near Chittagong, and thought his health impaired while there, though his only suffering was from slight fevers, which hardly ever confined him to the house. I have no doubt that the exertion of coming to Calcutta on the 15th, and then returning home, had some unfavorable influence on the progress of his disease.

CASE CLXXV.—Mr. Phillips, *Æt.* 36, a stout, bloated, and fat man, of dark complexion, born at Madras, had slight feverish symptoms on the 13th of July, 1830, which subsided in the evening, and he took no remedies; the fever returned on the 14th, about 2 P. M. and again subsided in the course of the night. On the morning of the 15th he walked above two miles to a medical man, who ordered him a dose of Jalap, and advised his going to Hospital. As he wished to avoid leaving his own house, he had a few ounces of blood taken from the arm, six leeches were applied to the left side, and he took the Jalap. However, the paroxysm on that day was much worse than either of the former. On the 16th, he walked above a mile, to transact some business which he wished to have settled, and used no remedies; the

fever of this day was described as very violent, and it left him much distressed, with shortness of breath. He now decided that if he should not be better, he would go into Hospital next day.

The paroxysm of the 17th of July was represented as very severe, and attended with early delirium. After he became insensible, he was brought into the Hospital at 5 P. M., in a state of muttering delirium, the pulse 120, and the surface generally was hot, but the heat of the head was most remarkable; the extremities were hot, and his hands were agitated, and constantly feeling over the belly. He did not put out the tongue when bid to do so, but he swallowed anything that was put into his mouth. He was bled to lb. i., and the head was shaved. A purgative enema was then administered, sinapisms were applied to the feet, and he was made to take 20 grains of Calomel, with six grains of Compound Extract of Colocynth.

While the blood was flowing, his pulse came down to 92, and was soft; but no other change in his condition was observed till 8 o'clock P. M.; the breathing then became laborious, and he sunk and died soon after 8 o'clock.

On post-mortem examination, eleven hours after death: every part of the body was found much loaded with fat; the muscles were of a florid color; the lungs were gorged with blood, especially at depending parts. The liver was enormously large, of pale color, and its surface was marked with numerous

ecchymosed patches : there was a small hydatid on its convex surface. The gall-bladder was distended with thick bile, of a dark-green color ; it was covered with a false membrane, and its base was attached to the colon. The cystic duct was unusually small. The intestines were greatly distended with flatus. There was much serous effusion between the tunica arachnoidea and pia mater on the upper surface of the brain, and morbid vascularity of the substance of the brain ; there was about 3 i. of serum in each lateral ventricle. The arachnoid coat at the base of the cerebellum was remarkably opaque, and there was above an ounce of serum beneath the tentorium.

This patient was considered in a hopeless state when he was brought to the Hospital. When a fat and plethoric man suffers several paroxysms of Remittent Fever, without following any regular plan of treatment, especially if he walks about and uses much exertion, effusion is almost certain to take place. After effusion has gone on to such a degree as to produce stupor, on the accession of the fourth or fifth paroxysm, there is very little use in trying any remedy ; but in cases where the symptoms of effusion are slighter, the morbid heat of skin being great, and uniformly above the natural standard at the extremities, and the patient plethoric ; it is proper to endeavour to alleviate the violence of the disease by taking some blood from the arm.

I am very unwilling to use the lancet, when first called to a patient in whom the fever has continued

many days, and the existing exacerbation is near its termination; because bleeding is then useless in bad cases, where the disease threatens a fatal termination; and at that stage of the paroxysm, in slighter cases, it is liable to be injurious. I have met with several instances, where the application of leeches, was from trivial causes, delayed for three or four hours after they were ordered; and then put on towards the conclusion of the paroxysm, when arterial action was subsiding, the patient being in a state of languor and anxiety, and the skin perspiring freely;—and death has been the consequence. The painful recollection of some cases which proved fatal, in consequence of my most precise instructions being neglected, makes me anxious to allude in the strongest terms to these misfortunes. The cause of delay in applying the leeches in these cases was generally the difficulty of procuring them promptly; and the friends considered it better to apply them late, than altogether to omit them. I hardly deem any part of the observations I have to offer concerning the peculiar nature and treatment of the Remittent Fevers of the rainy season in Bengal, of more importance than the caution I now give, respecting the hazard of either bleeding, or applying leeches at *a late stage of the paroxysm*; after the disease has been returning daily above a week, and when the patient is much exhausted. In the case of a stout young man, who had been for several days ill with severe Remittent Fever, from which he was gradu-

ally recovering, so that he was considered by his friends nearly convalescent; the exacerbation usually occurred about 7 A. M., it was my custom to see the patient at that hour, and again in the afternoon. On visiting him early in the morning of the 15th of July, 1826, I found the exacerbation commencing, with heat of the forehead; but the patient was walking about the room, and feeling hardly any illness. I desired him to go to bed, and apply a dozen leeches to the temples, which he promised to do; but after my departure he took a cup of tea, and sat down to write letters, at which occupation he continued till nearly eleven o'clock; he then felt very languid, and was perspiring freely, as had been usual in the former paroxysms, when the Fever subsided. He then ordered the man to apply a dozen leeches to his temples. Soon after 12, I was sent for in great haste, and ascertained what had been done; but all interference was useless, the patient was insensible on my arrival at his house, and died in ten minutes after. I have been informed on good authority, of an instance where a man with Remittent Fever was inconsiderately bled from the arm, just as the paroxysm was subsiding, and the result was fatal in a few minutes; the patient being dead almost as soon as the arm was bound up after the bleeding.

These results, from remedies which we are obliged to use in almost every severe case, would excite the utmost apprehension with respect to blood-letting in Remittent Fevers; were there any doubt as

to the proper time when to draw blood, or to postpone that remedy. But the indications which guide our practice being so plain and distinct, we may boldly do all that is requisite, without hazarding the patient's safety. I have already mentioned the frequency of death (in cases in which no depletion had been used) at some stages of Remittent Fevers ; sometimes with but little warning of the impending danger ; and at other times, with only some unusual anxiety for an hour or two, when there has been less than ordinary development of febrile heat. There is sufficient reason for believing that incautious use of the lancet or the application of leeches, at that period when the violence of the paroxysm is over and pyrexia is subsiding, would very frequently destroy patients, who by a careful and exact treatment might recover. So much precision do I consider necessary in such cases, that I invariably give the most positive orders, that if leeches do not arrive by a stated time, they are not to be applied till the patient be again visited ; and to avoid such delay, where leeches are likely to be wanted, they are ordered to be ready in anticipation. In protracted cases of Remittent Fever, in debilitated subjects, or even in some recent cases where the patient has been exposed to malaria in an intense degree, there is a short period after each paroxysm has reached its acme, in which rapid arterial action continues, with extremely diminished power ; though the apparent adynamia is not very remarkable. It is dur-

ing this period, that an inexperienced practitioner might be induced to try blood-letting or other active depletory measures, which he would find injurious. It is of equal importance to avoid the use of active cathartics, and to guard against any profuse spontaneous purging, more especially in the low cases, at this stage of the paroxysm. Those practitioners who have been 20 years in the country, are well aware of the necessity of this caution; and Medical men on their first arrival, had better be warned of this matter, than be left to learn it from the most painful experience.

The cases of Remittent Fever most difficult to treat, are those which are preceded by slight indisposition for a long time; and although the disease becomes at length more apparent, and more distressing, the patient only takes some purgative medicine daily, lives on rather a lower diet than usual, and "tries to shake off the sickness" by attending to his ordinary occupations. The disease continues, the paroxysms are generally uncertain in their hour of accession, the return of morbid heat being not very distinctly marked, and of short duration, often preceded by great anxiety, and followed by profuse perspiration, and cold extremities, for many hours. In these instances, the tongue is seldom dry, and not often much loaded; the exacerbation being only marked by increased frequency and weakness of the pulse, a slight flush of the cheeks, and dull watery appearance of the eyes. Increased anxiety, attended with a lurid appearance

of the countenance, with much oppression at the chest, and want of development of febrile heat at the ordinary hour of accession, with extreme apprehension of the result of the paroxysm, in persons usually of firm mind, are to be considered very unfavourable symptoms. Patients in whom these affections occur, sometimes declare they feel certain that they shall not survive the approaching paroxysm, and too often their predictions are true.

The Natives of Bengal, are very liable to suffer from Remittent Fever during the rainy season. Under ordinary circumstances, and in healthy seasons the majority of cases occurring among Natives who are not in absolute poverty, are usually slight, requiring only a few mild purgatives, and the application of leeches to the temples, in the early stage of the disease, and small doses of Sulphate of Quinine during the remission.

When the Remittent fever attacks native patients who are suffering from the influence of fatigue, poor living, and the depressing passions, it often proves very severe, and a large proportion of the cases terminates fatally. The brain and lungs seem to be the organs principally affected in the early stage of the disease; the stomach and intestinal canal becoming disordered at later periods. The same extent of depletion is not required in natives who are suffering from remittent fever, as for Europeans; and when the treatment is left to their own direction, leeches are very seldom

used. Plethoric Asiatics suffering from severe attacks of this Fever, are much benefited by one moderate bleeding from the arm, at an early stage of the exacerbation, before we have recourse to leeches. I am always averse to the administration of mercury to any great extent, in the Remittent Fevers of natives; except in combination with the purgatives that are given during the early stage of those cases which are attended with distinct inflammatory symptoms; and in those, general or local blood-letting should be premised. It is not very uncommon to see natives who have used much mercury in the course of Fever, acquire morbid susceptibility to atmospheric vicissitudes, for a year or two: they are then very liable to suffer from the diarrhœa that is connected with a diseased state of the mesenteric glands; and are apt to become permanent valetudinarians, either from Rheumatism, or Dysentery. The frequency of tumid spleen as a concurrent disease, as well as a sequel of Remittent Fever, is another very cogent reason for caution in the administration of mercury.

Fat and plethoric natives who are attacked with Remittent Fever, even though they have not been exposed to the circumstances usually inducing the more aggravated forms of this disease, and in whom an active treatment is not pursued, are frequently carried off by the 3rd or 4th paroxysm; and death occurs in the course of the exacerbation, from effusion into the brain and lungs. The symptoms that precede death, are extreme morbid heat of every

part of the body, blood-shot eyes, and oppressed breathing; attended with stupor, resembling apoplexy. I have often been called to such cases when they were in a hopeless state, but have not been permitted to make post-mortem inspections. The constitution of the patient, and the nature of the symptoms, with the stage of the disease when the fatal event occurred, left little room to doubt, that extreme vascular engorgement and effusion existed in the brain and lungs.

THE INSIDIOUS CONGESTIVE FEVER
OF THE COLD SEASON.

DURING the cold months, we frequently have occasion to treat a Fever characterised by slight and obscure symptoms at its commencement. For many days the apparent pyrexia is so trivial, that a practitioner, who is not acquainted with the nature of the disease, hardly sees an excuse for adopting active treatment. The earliest symptoms that are noticed are usually slight lassitude and weariness in the loins, with occasional transient pains in the joints, and inaptitude to continue any intellectual pursuit with the degree of vigor and satisfaction that is natural to the individual. There is a slight degree of shortness of breath, the urine is increased in quantity, and the sleep is unrefreshing. There is little alteration in the pulse, but food is not relished as

usual; and the patient is induced by a sense of weariness, to take an increased quantity of wine. After a period which varies from four to ten days, these ailments, which are hardly noticed, are followed by an obscure degree of dry heat of the skin, the urine becomes scanty and high-colored, appetite for food nearly ceases, there is some thirst, and much increase of languor. The patient supposes he has a cold, and has recourse to some domestic treatment; which unfortunately is in general the worst that could be devised. With the view of removing his cold and weakness, he eats some good soup, bathes his feet at bed-time, and drinks hot wine and water. Business is still attended to in the day time, and amusements in the evening are not relinquished, until the disease has been for many days making this slow progress. These obscure febrile symptoms are occasionally followed by active pyrexia, in three or four days, but it is sometimes near the end of the second week, before medical advice is called for, and even then no very distressing symptom is present; the pulse is soft, frequent, and weak, the wrist tremulous, the tongue little disordered; there is anxiety, and a sense of weariness in every part of the body. There is now a constant pain in the forehead, but it is so trivial that probably the patient will not complain of it, unless particularly questioned. The nights are restless, and the patient is obliged to give up attending to business. Some persons have weakness of the eyes, and a sense as if

the eye were bruised when we press over the lids ; the face is slightly flushed, and the hands are warm but dry. Others have the extremities rather cold, and the face has a lurid or chlorotic aspect.

At an early stage of the disease, the bowels are usually costive ; and when the calls to stool are frequent, the evacuations are exceedingly scanty. If the abdomen be examined, there is some fulness and tension at the epigastrium and across the hypochondria ; and this tension is not least, in those rare cases where slight tendency to diarrhoea has been manifested.

If the disease be left to nature, or improperly treated, there is a slow increase of the febrile symptoms, without anything like an ardent fever ; and usually very little alarm is excited, until delirium takes place at night, and the obscure pyrexia of the day is attended with drowsiness and an approach of stupor. The eyes become red ; the tongue much loaded, brown, and dry ; the urine continues high-colored ; and when the patient is not in a state of torpor, he often calls for drink. Intense yellowness of the skin and eyes, with red-colored urine, are occasional attendants on these cases ; the bilious discoloration has most frequently appeared, when there has been much oppression at the chest, and hurried respiration during the course of the disease. Sometimes a soreness of the whole body is much complained of ; and if we examine particularly, we find

the highest degree of this morbid sensibility is felt when we press over the glands, and along the course of the absorbent vessels. Patients in whom the glands are thus affected, suffer from rather more morbid heat, evening exacerbations are common, and there is often a very fretful state of mind: these cases in which the morbid sensibility of the absorbent glands is most remarkable, are tedious, and much mercury is generally found to be injurious, but the patients almost always recover.

One of the most remarkable features in this disease, is the long period which patients sometimes continue to be affected by delirium, or in which they remain oppressed, and in a torpid state, apparently insensible to most external objects and impressions; picking the bed-clothes, or constantly moving the hands vaguely, as if reaching for imaginary objects; and still recovery takes place. I have several times seen children who struggled through the disease, and were restored to perfect health, after having been delirious during two entire days and nights; and I once attended an adult, who was for four days unconscious of any surrounding object, and he recovered. In these patients who remained so long in a state of stupor or delirium, the disease came on gradually, without any exposure in unhealthy situations. Most cases of this fever, when protracted, take on a remittent form by the 8th or 9th day.

During the existence of stupor and oppression of the brain, when patients appear in a state of

torpor and indifference to surrounding objects and to their own sufferings, retention of urine often takes place, and is doubtless at times a cause of great distress, at a period when the patient is not in a state to explain the cause of his uneasiness. In many of these cases there is no urinous smell about the sick person; it is therefore requisite to call particular attention to this subject, and if a patient who has not voided urine regularly, become restless without any evident cause, but more especially if he frequently move his hands towards the belly or pubis; it may be advisable to foment the region of the bladder, and to administer a purgative enema; and if urine be not then freely voided, to introduce a catheter.

At the advanced stages of every description of fever, when prolonged cerebral affection lapses into a state of torpor, retention of urine sometimes takes place; but it appears to me to have occurred more frequently during cases of protracted fever in the cold season, than in any other description of fever in India. In the latter stages of all fevers, when the patient sinks into a state of stupor, it is very requisite to ascertain that he be not suffering from retention of urine.

Notwithstanding the obscure and insidious progress of this malady, a practitioner, who has seen the disease frequently, cannot fail to recognise an early stage in which almost all the functions of the system are disordered; followed by a period of sub-acute inflammation in several organs and textures. The

local affections of the brain and liver, usually become more obvious as the disease advances, subsequent to which, we observe a stage of oppression. This last stage is usually very abruptly developed, after a considerable period of indisposition; during the greater part of which time, as I have already said, the patient has attended to his daily business, and joined in social amusements; and this is the reason why we sometimes hear of persons having died of the cold-weather fever, after an illness of three or four days. However, it does sometimes happen that those who have been much exposed to fatigue and malaria in unhealthy situations, suffer from a fever very similar in many of its essential characters; only that it goes through the several stages in shorter period than above stated.

In those cases in which the patients have been much exposed to malaria, we sometimes find that no symptom of indisposition is observed, for 15 or 16 days after the individual has removed from the unhealthy situation, where there is every reason to believe the disease was contracted.

Post-mortem inspection does not discover much change of structure, different from that which is found in Remittents. The brain and liver are the parts principally affected; and hepatic abscess is more frequently found in those cases which occur at an early part of the cold season, than on the dissection of subjects who have died of any other description of fever. There is often much congestion at the root of the

mesentery, and in the fat and cellular structure surrounding the duodenum, where it is bound down across the spine. In a few rare instances, where patients have died after a protracted fever of this sort, superficial ulcerations of the mucous membrane of the small intestines were found.

I will not venture to assert that the ulcerations above alluded to, ought to be considered as causes of the fever of the cold season; and my reason for not deeming that pathological condition a primary affection existing at an early period of the disease, is, that active purgatives may be repeated daily for a long time at the commencement of this fever without producing irritation, in fact they almost always afford relief, whereas, we do sometimes find that active purgatives produce a degree of intestinal irritation at a late period, and when a fatal termination takes place afterwards, ulcerations of the small intestine are found in these subjects. If more extended observations should prove that these ulcerations of the small intestine exist generally in the cases which terminate fatally, and that such a pathological condition is rarely met with in the inspection of subjects that have died of other descriptions of fever in Bengal; I should be inclined to adopt the opinion of Dr. Boot, that a peculiarity of the disease would be thus ascertained, which, combined with the exclusive prevalence of this fever in the cold season, its insidious invasion, obscure symptoms, slow progress, and protracted

course, attended with prolonged stupor and delirium, and the organic changes at its latter stages, might establish a resemblance to some modifications of European Typhus; although the resemblance be not strictly correct in all its details.

All classes of persons are liable to the congestive fever of the cold season; it does not spare those who live in the best houses in Calcutta, or at the different stations, and who have command of every comfort. It attacks those who observe regular hours, and who are of temperate habits, and we find women and children suffer from this disease, which is frequent and sometimes destructive among those persons who are little exposed to most of the ordinary causes of fever. The most frequent causes appear to be a disordered state of the digestive organs, and obstructed perspiration from cold and humidity: the severest and most obstinate cases occurring, according to my observation, in those years when we have had rain three or four times in the course of the cold season. The gradual effects of climate and season, during the course of eight or ten months, seem to lay the foundation of some of the diseases of this country; but the prolonged influence of the climate of the lower provinces of Bengal, is not essential to the origin of this Fever, the worst forms of which I have seen attack individuals who had not been three months in India. Mental anxiety and despondency have a remarkably bad effect in aggravating and prolonging the worst symptoms of

this disease ; and influencing its termination. It is exceedingly rare to meet with this protracted congestive Fever, except at the cold season ; but this is by no means the exclusive febrile disease of that period of the year, for remittents, intermittents, and common inflammatory Fevers terminating in abscess of the liver, appear at the same time.

In the cure of this disease, we have the same general objects in view, as in the treatment of common continued fever ; but we see a less degree of morbid arterial action to subdue, and less pyrexia to moderate ; and until the disease is far advanced, there is no very urgent local affection apparent which might indicate a particular line of practice ; still there is ample evidence of the extensive and permanent impression which has been made by the causes producing the Fever. I am not aware that we can completely subdue this disease at once ; even in slight cases, a prolonged treatment of several days, is requisite to restore the healthy state of the several functions. The period when remedies can most effectually be employed, is when the slight but fixed pain in the forehead commences ; one free bleeding from the arm is then advisable, and a dose of Calomel and Jalap, followed by Castor Oil. A small bleeding is often requisite on the next morning, and a mild purgative should again be given. If the tongue be foul, after this treatment, an emetic may be ordered in the afternoon ; followed daily by Blue Pill and antimonial powder at bed-time, and mild purga-

tives in the mornings, until the disease is removed. As long as any symptoms of Fever remain, the patient should be confined to bed, and advised to take no food except tea and thin gruel, in small quantities; when the disease is subsiding, a tepid bath is often very serviceable. The obscure but permanent head-ache, is by no means to be neglected; it is best removed by shaving the head, and by due employment of general and local blood-letting.

If we are not called to treat a patient until a late period of the disease, when the epigastrium has become tumid, and symptoms of extensive congestion of the abdominal viscera are manifest, our remedies are less effectual, and the disease usually proves more protracted; we are then often obliged to repeat the bleeding from the arm, to apply leeches frequently to the region of the liver, and to pursue a system of active purging with Calomel and Jalap. In other cases, where no distinct symptom indicating an affection of the liver is present, the bowels are remarkably torpid, the belly is not very tumid, but it is doughy and inelastic. Scanty, black, watery evacuations, are procured by the ordinary doses of Calomel, followed by Jalap, or infusion of Senna with Salts; and the Fever is slowly progressive. Slight evening exacerbations occur daily; which are frequently attended with morbid heat near the parts where most congestive disease exists. Local blood-letting should be employed in such cases, and we generally succeed in procuring feculent evacuations

by ordering 12 grains of Calomel, with as much compound powder of Scammony, and Jalap, in the morning ;—followed in five hours by a mixture of Castor Oil and Oil of Turpentine, giving of each one ounce for a dose to an adult. These medicines are in some cases requisite to be repeated for several days, and they are usually effectual in procuring copious and feculent evacuations: their efficacy is much promoted by giving at bed-time eight grains of Blue Pill, with as much Compound Extract of Colocynth, and four grains of Extract of Hyoseyamus.

A peculiar appearance has been sometimes observed in the evacuations of patients who are using Oil of Turpentine as a purgative, which has occasionally given rise to mistakes. When active purging is produced, a portion of the turpentine almost always passes through the intestines unchanged. Some drops of this medicine, adhering to masses of mucus that are specifically heavier than other portions of the evacuations, sink to the bottom of the vessel in which they are contained; but the drops of Oil of Turpentine being much lighter, are from time to time detached from the mucus, and rise suddenly to the top of the fluid, where the drop expands quickly, and is attracted to the nearest side of the vessel. The movement thus produced has often been mistaken for living worms, and a series of drastic purgatives has been directed for the purpose of expelling these imaginary animalculæ.

The deceptive appearances above alluded to, are of course only observed when turpentine has produced copious and fluid stools. Should the evacuations produced by that medicine be diluted with water, and stirred, for the purpose of being more accurately examined, the appearances above described may be more readily observed. A medical man who suffered miserably from Dyspepsia, had used a variety of cathartics, the benefit of which appeared in the inverse ratio of the irritation they produced. From the suggestion of some friends, he tried turpentine, and on examining the evacuations produced by that purgative, he was delighted with the idea of getting rid of a host of enemies by the effects of each dose of the medicine; but not finding the expected relief after some time, he came under my care. He was soon convinced that the appearance which he thought arose from living animalculæ, was deceptive, and after a time, he recovered by active exercise, a regulated diet in small quantity, and the mildest aperients, which were only taken when indispensable. I have met with several instances, where similar errors have given rise to the most unjustifiable administration of powerful cathartics, to children. The unhappy little patients were physicked daily, and the stools were punctually diluted, and stirred and inspected; and the parents were regularly congratulated on the expulsion of "such foul vermin," the removal of which they were assured must be highly beneficial. The poor children however

were not relieved of the distressing griping, and colics, till the use of drastic purgatives was suspended.

When we are using active purgatives, with Oil of Turpentine, as above-mentioned, and they seem to be acting with all the success we could wish, we sometimes find suddenly, an unusual fretfulness of the patient's temper, there is anxiety, and increased avidity for drink; the stools though copious do not afford relief, and the evacuations are found to have a reddish tinge; the tongue assumes a bright-red color, and there is a frequent and small pulse. The character of the disease is now changed, and we must restrict our prescriptions to articles of the mildest nature. We may give either small doses of Ipecacuanha, with Hydrarg. cum Creta, at bed-time; or Pil. Hydrarg.—Pulv. Ipecac.—Extract. Gentian, and Extract. Hyoscyami, of each two grains, in pills. Should purgatives be now requisite, small doses of Castor Oil, or of Infusion of Senna, with Manna, or an enema may be ordered. If the intestinal irritation should continue, a blister will be requisite to be applied to the abdomen; and if there be much tenesmus, an enema of 2 ounces of cold water, with 3 ss. of Laudanum, is advisable to be given at bed-time, if there be no acute cerebral symptoms present, to prevent it. The food must be restricted to small quantities of tea and thin arrow-root.

Although high arterial action, and great increase of heat are so rare in this fever, except at remote

stages of the disease, blood-letting is a very essential part of the treatment. I do not remember ever to have seen a patient that died, who had been bled from the arm, at an early period; though the subsequent treatment may have been so unskilfully conducted as to insure a prolonged disease, in the cure of which much difficulty was experienced.

Young women in whom the obscure and insidious stage of the fever of the cold season has been in progress for several days before the usual period of menstruation, frequently have the monthly discharge suspended, and the symptoms of fever become at that time somewhat aggravated. Pain in the loins and other indications of impending menstruation being present, the practitioner is apt to hesitate in the use of active remedies, particularly blood-letting, on the principle of not interfering with the course of nature, or arresting the monthly discharge. After several days of delay in expectation of the menses appearing, an increase of fever demands active depletion, and the first effectual abstraction of blood from the arm usually relieves the system to such a degree, that a slight menstrual discharge commences; but if depletion adequate to the removal of the fever be not steadily pursued, the discharge ceases in a day or two, and the pyrexia becomes again aggravated. An unsteady treatment at that time, is apt to insure a protracted disease, and even if life be saved, much permanent distress from dysmenorrhæa frequently follows. In consequence of the fever occurring at a time when the natural

turgescence of the uterine vessels takes place, a slow congestive affection of the uterus and its appendages is established, and permanent organic disease is liable to follow.

When the fever commences about the time of the menstrual period, and interferes with its regular course, as above stated; if the pyrexia be so slight that we may expect its cure by rest, diluents, mild aperients, and low diet, it would be imprudent to resort to blood-letting in a delicate person at such a crisis. On the contrary if the fever be of a more severe and obstinate description; or if the patient be robust and plethoric, even though the fever be mild, it would be injudicious to treat the case indecisively, and V. S. must be employed, and repeated in the same manner that would be advisable for a similar attack of fever which did not coincide with the menstrual period.

When a case of this sort is protracted in consequence of insufficient use of the lancet, the remote evils which frequently follow, depend on a morbid condition of the uterus or its appendages, but more particularly on a chronic thickening of the cervix and os uteri, in consequence of which the patient is subsequently liable to suffer from dysmenorrhæa, and all its painful and distressing attendants. Though the occurrences above described, take place much more frequently during the cold season than at any other period, they are not to be considered as peculiar to the fevers of that season, or to Bengal*.

* Professor Autenreith has observed similar consequences to occur when scarlet fever took place about the time of the

CASE CLXXVI.—James Carter, *Æt.* 19, arrived in Bengal early in December, 1826 : he was of a dark complexion, but rather delicate constitution, and his face was florid ; he was a relation of the Captain of the ship in which he came out, and resided on shore with him, to assist in the transaction of his business. His habits were regular ; in fact he was remarkably careful, not only in his modes of living, but in avoiding exposure to the sun, as he had a dread of the climate. He began to feel ill on the 2nd of February, 1827, and thought he had caught cold ; but his ailments were so slight that no treatment was followed except diminishing his quantity of food, bathing the feet in hot-water at bed-time, and taking Seidlitz Powders in the forenoons ; but he attended to business every day.

He gradually became more feverish, and had restless nights, with slight head-ache, and soreness of the eyes : for which he was bled on the 6th of February, by the Surgeon of the ship, who gave him some Calomel and James's Powder at bed-time,

appearance of the catamenia. The subsequent menstruation was regular as to time, but scanty in quantity, and attended with extreme pain, spasms, lowness of spirits and congestions of the chest. He says the same consequences have followed exposure to cold, or putting the feet in cold water at the first menstrual period. The immediate effect he believes to have been an inflammatory affection, producing constriction of the os uteri ; and followed by recurvation of the cervix. He has found sterility to be the remote consequence. See *Annals of Medicine and Surgery*, vol. ii. p. 292. Dr. John Mackintosh's *Pathology of Dysmenorrhæa*, fully explains the nature of such affections.

followed by Castor Oil in the morning ; and restricted his food to broth, tea, and bread. This treatment seemed so beneficial, that on the 8th, he thought himself well ; however, a slight exacerbation occurred in the evening, but he felt well again on the 9th, and took some Decoction of Bark with Acid, which was continued daily in the afternoon till the 12th ; and Seidlitz Powders were used early every morning to keep the bowels free. His febrile symptoms increased, and his nights were more restless than before, but he had not much complaint except a sense of weight in the forehead, and slight flush in the cheeks ; attended with so much weariness and sense of debility, that he was obliged to remain in bed the greater part of the day. He afterwards took Calomel and Extract of Hyoscyamus at night, and small doses of Salts in the mornings, which purged him, but with little apparent benefit ; and on the 16th his gums became very slightly affected by the mercury. The fever was not removed by these means, and there was so much languor and exhaustion, that impending typhus was apprehended. I was then requested to see the patient, and got the above account of his illness ; and of the treatment that had been followed.

The state of the patient on the 16th of February did not present any symptoms of much urgent disease, except a constant restlessness and sighing. There was very little morbid heat of the skin, and that was more evident at the forehead and epigastrium than

at other parts ; the whole surface was remarkably dry. Considerable fulness at the epigastrium was observed, but pressure there gave no pain ; the pulse was 96 and rather weak, the eyes were dull and watery, the tongue was little coated with brownish mucus, and he was thirsty. The stools which were kept for inspection, were copious, watery, and of a black color, mixed with masses of grey mucus, and a slight appearance of yellow fæces. The urine was scanty and high-colored. He was directed to take only tea, toast-water, and thin barley-water.

The head was shaved, 10 leeches were ordered to the epigastrium, and four to the temples.—12 grains of Calomel with six grains of Compound Extract of Colocynth, and three grains of Extract of Hyoseyamus were given at bed-time ; and Infusion of Senna, with Salts and Manna, was ordered early the next morning.

February 17th.—He has had a scanty, fluid, black stool in the night, but he had no rest, and was at times delirious. The medicine has operated freely several times this morning, the evacuations are not improved, but he is now more tranquil than he was in the night. Pulse 96 ; tongue moist, but more loaded with brown mucus.

R. Antimon. Tart. gr. ii.—Aquæ lb. i. misce.

A large table-spoonful to be drank every hour.

Oleum Ricini ʒ i. at noon.

No food but tea and barley-water.

Vesper.—He has had two scanty, black, watery stools since the morning, and there is a slight increase of pyrexia. Pulse 108 ; the tongue is dry and

brown, the eyes are filled with tears; the cheeks are flushed, and the skin is dry.

Apply eight leeches to the temples.

R. Calomel. \mathfrak{z} i.—Extract. Hyoseyami,

Extract. Colocynth. Comp. āā gr. iv. ℥ s.

February 18th.—He was restless and delirious all night, but is more composed at present; though he is occasionally somewhat incoherent, and lies with his mouth open. The tongue is dry and brown, the skin dry, and the pulse 106; but there is very little morbid heat. The belly is tumid and inelastic, but pressure does not seem to cause much pain. He has had several scanty, watery stools, passed in bed.

R. Olei Ricini—Olei Terebinth. āā \mathfrak{z} i. misce.

To be given immediately.

Let him have Pulv. Jalap. Comp. \mathfrak{z} i. with Pulv. Scammon. Comp. \mathfrak{z} i. in mint water, at 3 p. m.

The Antimonial Solution to be given every hour as yesterday.

Vesper.—The medicine has procured several copious dark-brown stools, much more feculent, and of more uniform appearance than those voided lately, but of a very dark color. His belly is softer and less tumid; the cheeks are slightly flushed; the extremities are warm and dry; pulse 110, and stronger than in the morning. He appears to suffer much anxiety, and his answers are somewhat incoherent.

Ordered 12 leeches to the epigastrium, and four to the temples.

R. Calomel. \mathfrak{z} i. in mint water, at 3 p. m.

Antimonial Solution every hour during the night.

Feb. 19th.—He was incoherent all night, and constantly moving his hands, as if attempting to take hold of some imaginary object. Two more dark-colored, feculent stools, have been passed in bed. He has not spoken during the night ; towards day-light, his hands were often directed towards the region of the bladder, and as he had not voided urine, during the night, a catheter was introduced, and above a pint of high-colored urine was drawn off. The gums are very sore. He swallows whatever is put into his mouth, and does not seem to distinguish food from medicine. There is much tremor of the head and arms, when he is raised for the purpose of taking his medicine.

R. Pulv. Scammon. Comp. (Ph. Ed.) ʒ i.

—Jalap. Comp. ʒ i.—Aq. Menth. Pip. ʒ i. misce,
to be given at 8 A. M.

Infusion of Senna with Salts at noon.

A wine-glassful of barley-water four times a day.

Vesper.—He has had four stools, passed in bed, but no urine has been voided. Pulse 108 and weak. There is very little alteration since morning, except a slight increase of morbid heat of the forehead. The hands are tremulous, and he continues to pick the bed clothes.

Catheter introduced.—Apply two leeches to the temples, and a blister to the epigastrium.

R. Extract. Colocynth. Comp. gr. vi. ʒ s.

Antimonial Solution omitted.

A small wine-glassful of Camphor Mixture to be given every two hours, and some gruel once in the night.

Feb. 20th.—He has had another restless night, and the stools are passed unconsciously in bed; pulse 102, and not very weak. There is very little morbid heat of the skin, and no material change since yesterday, except that the sacrum is found to be very red, and somewhat excoriated. The catheter was again used early this morning.

R. Calomel. gr. iv.

Pulv. Jalap.

Pulv. Scammon. Comp. (Ph. Ed.) āā 3 ss. to be given at 7 A. M.

Oleum Ricini—Ol. Terebinth. āā 3 i. at noon.

Camphor Mixture continued every two hours.

A wine-glassful of thin gruel four times in the day.

Vesper.—Several copious feculent stools have been passed in bed, but not unconsciously; he has voided urine, and appeared more tranquil all day; has slept occasionally for a few minutes. Pulse 98, soft, and weak; the hands are less tremulous. The tongue is moist, but much coated with brown mucus in the centre, its edges are cleaner.

R. Scammoneæ—Gummi-resinæ,

Extract. Colocynth. Comp. āā gr. iv.

Saponis Duri, Cambogiæ āā gr. i. misce, fiant
Pil. ii. n. s. sumendæ.

Feb. 21st.—A restless night: he is much distressed by the soreness of his mouth, and ulceration of the sacrum. Pulse 106, and soft; there is no morbid heat of the skin; the feet are cool, and a slight moisture has appeared at the joints.

R. Pulv. Jalap.—Magnesiæ āā ʒ i. at 7 A. M.

Ol. Ricini ʒ ss. at noon.

He was ordered to take Infusion of Bark ʒ iss. with Sulphate of Magnesia ʒ i. and ten drops of Aromatic Sulphuric Acid, at 4 o'clock, and to repeat the dose at 6 P. M. Food—tea, and thin sago, with a spoonful of Sherry.

Vesper.—He slept at times, and is much better. Pills repeated as last night.

Feb. 22nd.—He has had some disturbed sleep at intervals, and has voided several stools of a lighter color; he is very faint when raised in bed. The tongue is moist and much cleaner. Castor Oil repeated at 7 A. M. and Infusion of Bark with Salts in the afternoon. Pills at bed-time as on the 20th.

Feb. 23rd.—He was rather too much purged last night, and debility is now the principal ailment. A considerable slough of the sacrum is separating. Chicken broth added to his diet. Infusion of Bark with Salts continued twice a day.

R. Scammoneæ Gummi-resinæ,

Extract. Colocynth. Comp. āā ʒ ss.

Saponis Duri,—Cambogiæ āā gr. vii.—misce et divide in Pil. xiv. One or two pills every night, to keep the bowels free.

After this date, the sore on the sacrum was very troublesome, and the patient was confined to his room a month longer, on account of the ulcer and general debility. He ultimately recovered.

CASE CLXXVII.—J. Marjean, Æt. 26 ; sailor of the Ship *Jean Henri* : a stout man of dark complexion. Admitted into the General Hospital on the 24th of Nov. 1830. He has been ill for 12 days, with fever and head-ache, for which he had taken aperients, and has been bled from the arm to six ounces ! ! On admission, he was labouring under considerable pyrexia, with morbid heat of the forehead ; the epigastrium was tumid and inelastic, the pulse was soft and nearly natural ; and the tongue was slightly coated with white mucus, but thirst was not very urgent.

V. S. ad lb. iss.

R. Calomel.—Extract. Colocynth. C. āā ʒ ss. at 7 A. M.
Pulv. Jalap. Comp. ʒ i. at noon.

Vesper.—The blood is not buffy ; he has had only one stool, and says he is better, but the tension at the epigastrium and morbid heat of the forehead continue. Pulse 78, and rather hard.

Apply 10 leeches to the temples.

R. Ext. Colocynth. Comp.—Pil. Hydrarg. āā gr. v. h. s.

November 25th.—The medicine has operated four times in the night ; the evacuations are copious, dark and feculent. He had no sleep, and there is rather more fever this morning ; the forehead is very hot, and pressure at the epigastrium causes pain.

V. S. ad ʒ. x.

Pulv. Jalap. Comp. ʒ i. to be taken at 7 A. M.

Apply 10 leeches to the Epigastrium at noon.

Vesper.—The leech-bites have bled profusely, and the medicine has produced free evacuations of

the same sort as before. He had a slight rigor at noon, and thinks he is better; some tension at the epigastrium remains. Pulse 78, and softer. The blood drawn in the morning is slightly buffy.

R. Extract. Colocynth. Comp.—Pil. Hydrarg.

——— Hyoscyami āā gr. iv. ℞. s.

Nov. 26th.—He slept tolerably, and is much better. Pulse 74.

R. Pulv. Jalap. Comp. 3 i. at 7 A. M.

Nov. 27th.—He was purged freely yesterday, and slept till midnight, since that he has been feverish; some morbid heat of the forehead exists at present, and he complains of head-ache. Pulse 76 and soft.

Apply four leeches to the temples.

R. Calomel.—Extract. Colocynth. Comp. āā ʒ ss.

Vesper.—He is cooler, but suffers from anxiety, and appears weaker; he has had two scanty watery stools of dark grey color. Up to this time, he has only been allowed tea, bread, and Cream of Tartar mixed with thin barley-water;—he is directed to take some arrow-root, with a small quantity of wine, this evening.

Ext. Colocynth. Comp. ʒ ss—Pil. Hydrarg. gr. v. ℞. s.

Nov. 28th.—The fever has returned, not preceded by any rigor, he is suffering from head-ache and slight thirst. The skin is dry, pulse 82, and rather hard but not full. He slept little in the early part of the night.

Apply four leeches to the temples.

R. Pulv. Jalap. Comp. 3 i.

At 4 P. M.—He is still feverish, and the forehead is hot; pulse 92 and soft. He has been delirious occasionally since noon, the belly is now hot, and the epigastrium tense; the evacuations from the bowels are scanty, watery, and of dark-grey color.

R. Calomel. ʒ ss.—Pulv. Jalap. ʒ i. statim.

At 9 P. M.—He has vomited once, and has been purged freely several times. Pulse 86 and soft, he is now cooler, and not delirious.

R. Calomel. ʒ i.—Extract. Hyoscyami gr. iv. h. s.

Nov. 29th.—He has been purged freely eight times in the course of the night; the tension and pain at the epigastrium are removed, and he is free from fever. He desires to eat bread and milk, which is allowed in small quantity.

R. Extract. Colocynth. Comp.—Pil. Hydrarg. āā gr. v.

Nov. 30th.—Bowels free; he is convalescent, but weak.—Infusion of Senna and Gentian ordered daily. He was discharged to join his ship on the 3rd of Dec.

Quinine might have been given in small doses during the remissions of the febrile symptoms on the 26th, and evening of the 27th of November, with some benefit, and would have probably enabled him to bear the subsequent depletion, with less exhaustion. He was completely relieved by the copious evacuations, which removed the fulness and tumefaction at the epigastric region; after which, his recovery was prompt and complete. Fever, with headache and fulness at the epigastrium, of 12 days duration, at any other season of the year, and in such a subject, would almost certainly terminate fatally.

CASE CLXXVIII.—Pierre Magnant, *Æt.* 21, a sailor of the Ship *Jean Henri*, of middle stature and firm constitution; was attacked with fever on the 22nd of Nov. 1830, and treated on board ship with mild aperients, low diet, and one bleeding from the arm to six ounces!! He was admitted into the General Hospital on the 1st of December, in the evening, with obscure febrile symptoms, the tongue was white and dry, the pulse oppressed, the face was livid, and there was not much morbid heat of the surface.

Head shaved.—V. S. ad lb. iss.

R. Calomel.—Extract. Colocynth. C. āā ʒ ss. H. s.

Dec. 2nd.—The medicine has produced several scanty, brown, watery stools during the night; the blood has not been kept for inspection; he has suffered much since midnight from anxiety and dreadful thirst, and is now low, weak, and nearly cold. The pulse at the wrist is not perceptible, and his countenance has a lurid cadaverous aspect; in fact all the symptoms of extreme venous congestion and obstructed circulation are present. He complains of a difficulty of swallowing, but has not vomited.

R. Calomel. ʒ i.—Opii gr. i.—fiant Pil. statim sumend. cum haust. ex. Spirit. Ammoniae Aromat. ʒ i.

Aquæ Tepid. ʒ i.

Habeat statim Enema Cathartic.

Ordered to apply six leeches to the Epigastrium.

R. Calomel.—Extract. Colocynth. Comp. āā ʒ ss.—to be taken at 10 o'clock A. M.

Ol. Ricini ʒ i. at 2 P. M.

Vesper.—He has had several feculent stools during the day, the thirst is moderated, and his pulse is now

perceptible, but very weak. He was ordered some sago.

R. Calomel.—Extract. Colocynth. Comp. āā ʒ ss.

Extract. Hyoscyami gr. iv. fiant Pil. ʒ. s. sumendæ.

Dec. 3rd.—The extreme venous congestion is decreased, and the pulse, though improved in strength, is still soft. He has had several copious watery stools, among which some dark-grey powder has subsided at the bottom of the stool-pan. The belly remains very hard and tense.

Apply 16 leeches to the Epigastrium, and a large hot Poultice after their removal.

R. Calomel.—Extract. Colocynth. Comp. āā ʒ ss. at 7 A. M.

Pulv. Jalap. Comp. 3 i. at noon.

Vesper.—His condition is not much altered, except that he has been delirious. The medicine has produced several fluid, dark stools. Some hot sago was given; and at bed-time he was made to take

Extract. Colocynth. Comp. gr. viii.

Calomel.—Extract. Hyoscyami āā gr. iv.

Dec. 4th.—He has had several scanty evacuations during the night, but the belly is still tense. The pulse remains oppressed, and his countenance is livid and cadaverous; the tongue is clean and moist.

Apply 16 leeches to the belly.

R. Pulv. Jalap. ʒ i.—Calomel. ʒ ss.—to be taken in treacle at 7 A. M., and repeated at noon.

A Purgative Enema was ordered at 7 A. M., and repeated at 8.

At 4 P. M.—He has had three copious, feculent, dark-colored stools, and the belly is rather less tense.

The leeches have bled freely. The pulse continues as in the morning; a degree of delirium is now present, and the tongue is cold.

R. Calomel. \mathfrak{z} i.—Opii gr. i.—to be taken in pills immediately.

R. Spirit. Ammoniae Aromat. \mathfrak{z} i.

Aquæ Cinnamomi \mathfrak{z} i.—misce, to be drank after the pills.

The above medicine was repeated in three hours.

These remedies had no effect; he gradually became more torpid, and died at 11 P. M.

Dissection—11 hours after death:

On opening the abdomen, the liver and spleen were found enormously enlarged, rounded, and of very dark slate-color; their texture so soft and friable as to be easily torn. The enlargement of these viscera was sufficient to account for the fulness, tension, and hardness of the abdomen, which had been so remarkable during life. There was a deficiency of the usual quantity of blood in other parts of the subject. The gall-bladder was distended with much dark-green bile. The stomach contained a slight quantity of gas, its appearance was relaxed, and the coats were pale; its mucous membrane was lined with much pale-grey mucus.

An extreme degree of induration, and fulness at the Epigastrium and hypochondria, existed on this patient's admission, but it was not inserted in the first day's report; he belonged to the same ship, his illness occurred about the same time that the previous case was attacked, and both patients had been exposed

to nearly the same circumstances, and causes of disease. We may conclude that the latter case was at first considered the milder and less important, as the man was not sent to the Hospital early. Blood-letting to the amount of six ounces, even at an early period, can have very little effect in removing internal congestion in such cases ; and when engorgement of the liver and spleen has taken place to an extreme degree, at a late period of the disease, the circulation of the blood in those organs is almost in a state of stagnation ; obscure febrile symptoms with extreme oppression then take place, and the patient is unable to bear much active depletion. The treatment of such cases requires much caution, and we sometimes succeed in removing the disease by moderate depletion, a regulated but very spare diet, and mercury, if the spleen be not much affected.

CASE CLXXIX.—Mortimer, *Æt.* 28, a middle-sized and muscular man, of dark complexion, and temperate and active habits. He has been labouring under fever for five days, not preceded by any rigor ; but he suffers an exacerbation about 1 P. M. daily, and has less fever in the forenoon than at any other period during the day. He has taken purgatives, and applied leeches to the temples, and to the pit of the stomach, but as the disease is unabated, he desired to be sent to the Hospital, and was admitted on the evening of the 5th of December, 1831, suffering from fever, with flushed face, and pulse at 102.

Apply eight leeches to the Epigastrium.

been exposed

R. Calomel. \mathfrak{D} ss.—Extract. Colocynth. Comp.

Extract. Hyoscyami $\bar{a}\bar{a}$ gr. iv. \mathfrak{H} . s.

Dec. 6th.—The medicine operated 10 times, the evacuations are scanty, black, and slimy. He is now cool; his tongue is dry and nearly clean. Pulse 108 and feeble.

R. Calomel. \mathfrak{D} ss.—Extract. Colocynth. Comp. gr. v. at 7 o'clock A. M.

Pulv. Jalap. Comp. \mathfrak{z} i. at noon.

The exacerbation of fever took place at 2 P. M. preceded by chilliness, but no rigor. He soon became very hot and restless. Pulse 126, and rather small; his face was flushed, but the tongue was moist, and coated with a little white mucus.

V. S. ad lb. iss. statim.

R. Extract. Colocynth. Comp. gr. viii.

—— Hyoscyami, \mathfrak{z} i.

Pill. Hydrarg. $\bar{a}\bar{a}$. gr. iv. \mathfrak{H} . s.

Dec. 7th.—The blood taken yesterday is not buffy: he has had two free stools of a dark color; the tongue is moist and clean; he complains of a cough, but is now quite cool.

Apply six leeches to the Epigastrium.

R. Calomel.—Extract. Colocynth. C. $\bar{a}\bar{a}$ \mathfrak{D} ss. at 7 A.M.

Ol. Ricini \mathfrak{z} i. at noon.

Vesper.—The medicine has operated four times; the evacuations are copious, watery, and as black as ink. He has been rather feverish since 1 P. M. Pulse 108 and soft; his skin is quite dry, but there is very little morbid heat, and his face is pale; the tongue is moist and nearly clean. He is now suffer-

ing from some anxiety and languor. The abdomen is soft, flat, and elastic. Some sago allowed.

R. Calomel. \mathfrak{z} i.—Extract. Colocynth. Comp. gr. v.

Opii gr. i. \mathfrak{H} . s.

Dec. 8th.—He has had only one stool during the night, which is copious and more feculent than those of yesterday. The anxiety has subsided, and the pulse is soft. The centre of the tongue is dry, and slightly coated with grey mucus, its edges are moist and clean. He was ordered to take infusion of Senna with Salts.

Vesper.—The medicine has produced five copious watery stools, of dark-green color. Pulse now 112: he is not suffering so much from anxiety as he was last night.

R. Calomel. \mathfrak{z} ss.—Extract. Colocynth. Comp. gr. viii.

Extract. Hyoscyami gr. iii.—Opii gr. ss. \mathfrak{H} . s.

Dec. 9th.—He slept, and feels much better; the medicine has produced two stools, of light color. Pulse 94 and soft; the tongue is moist and nearly clean. He was ordered two grains of Sulphate of Quinine at 8 o'clock, and the dose was repeated at 10 A. M. A drachm of Compound Powder of Jalap was given at noon.

Vesper.—The medicine has operated freely, the evacuations are black and watery, with some dark-brown fæces, resembling portions of putrid sponge.

R. Extract. Colocynth. Comp. gr. viii.

Calomel.—Ext. Hyoscyami āā gr. iv. \mathfrak{H} . s.

Dec. 10th.—He has had four pale-yellow evacuations during the night, and is now feverish.

R. Pulv. Jalap. Comp. ʒ i. at 7 A. M.

One grain of Sulphate of Quinine in solution at 10, 11 and 12 o'clock.

Vesper.—Bowels free, and he is much better than he has usually been of late, at this time of the day.

R. Extract. Colocynth. Comp.—Pil. Hydrarg.

— Hyoseyami āā gr. iv. H. S.

Dec. 11th.—He has had two stools during the night; the first is fluid, and of light-yellow color, the second is nearly black, and pultaceous.

R. Ol. Ricini—Aquæ Cinnamomi āā ʒ i. at 7 A. M. and repeat the dose at noon, if he be not freely purged.

Dec. 12th.—The medicine operated four times during the day, the evacuations are copious, fluid, and of light-yellow color: he had two moderate loose stools at night, of natural color. He slept well, is cool, and has no complaint except debility.

Mild purgatives and Quinine were repeated; and he was able to leave Hospital on the 16th of December.

CASE CLXXX.—Henry Freeman, Æt. 30; a middle-sized but muscular man, of dark complexion, five years resident in India, and recently employed at *Altarabanka*, in the Sunderbunds. Came under my care on the evening of the 16th of January, 1832. He was then in a state of ardent pyrexia, with very hot skin and flushed face; the pulse 92, but neither remarkably full nor hard. The tongue was loaded with dark-grey mucus. There was a fulness at the epigastrium, and across the hypochondria; and there was some morbid sensibility at the scrobiculus cor-

dis, as well as below the navel. The bowels were costive. He stated that he had been ill six days with fever, and that there had usually been a coldness at 10 o'clock A. M., followed by extremely severe fever, and little or no perspiration afterwards.

V. S. ad lb. ii.

R. Calomel. gr. v.—Extract. Colocynth. Comp. ʒ ss.
H. S. sumend. 4 o'clock P. M.

January 17th.—The blood is florid, and not buffy; the serum is turbid. He had only one stool during the night, it is of dark color. His face is less flushed: pulse 76 and soft; the tongue is in the same state as yesterday. He is ordered to take no food, but small quantities of tea and sago.

R. Extract. Colocynth.—Pil. Hydrarg. aa ʒ ss.
at 7 o'clock A. M.

Pulv. Jalap. Comp. ʒ i. at noon.

Vesper.—The fulness of the belly remains, without hardness. His tongue is cleaner, and there is less morbid heat of the head. The medicine operated four times early in the day, but not freely. Arrangements were made to bleed this man in the cold stage, but as no rigor returned at the usual hour, six leeches were applied to the epigastrium, in the afternoon. Late in the afternoon, a profuse purging took place, which made him very weak. The evacuations were a black water. He was then ordered some sago, with a small quantity of wine; and to take

Calomel. ʒ ss.—Extract. Colocynth. Comp.

Extract. Hyoseyami aa gr. iv.—Opil gr. i. H. S.

*Jan. 19th.**—He slept; his body is now nearly cool, and there is no morbid heat of the head. Pulse 96. The edges of the tongue are clean and moist, its centre is coated with brown mucus, and rather dry. He had one scanty stool in the night, consisting of light-colored fæces, with dark-brown water. There has been no return of coldness since he was bled on the 16th of January.

R. Pulv. Jalap. Comp. ʒ i. at 7 A. M.

R. Extract. Colocynth. Comp.—Pil. Hydrarg. āā gr. v. at noon.

The body to be sponged with hot-water.

Vesper.—He is suffering from anxiety; the fulness at the epigastrium remains. Pulse 116.

Two leeches were ordered to the epigastrium, and he took at bed-time

Extract. Colocynth. Comp. gr. viii.

Pil. Hydrarg.—Extract. Hyoseyami āā gr. iv.

Jan. 20th.—He has had no sleep; the leech-bites are still bleeding. The pills operated twice. His belly is much softer, and he is perspiring; the centre of the tongue is coated with a brown, dry crust, but its edges are moist and clean. Pulse 104 and soft. His principal complaint is of anxiety and lowness; his voice is weak.

R. Infus. Sennæ C. ʒ iss.—Quininæ Sulph. gr. ii.

— Gentian. C. ʒ ss.—Magnesiæ Sulph. ʒ ii.

Acid. Sulphuric. Aromat. gtt. iv.—misce.

* I have made no memorandum of this case on the 18th, but conclude there was no material change on that day; and that on account of the previous purging, no medicine was given.

To be taken at 7 o'clock A. M.

Two grains of Quinine were ordered to be given at 10 A. M., and repeated every hour till 3 o'clock P. M.

At noon, he was tranquil, but appeared weak and low; the pulse was 66 and soft, his hands were quite cool, the tongue remained as above stated, and his bowels had been moved once. He was ordered to have a small quantity of sago and wine at 12, at 2, and 4 o'clock.

Vesper.—No improvement; the symptoms of extreme congestion with debility continue. The tongue is dry and hard; there is no morbid heat of any part, the feet are cool, and he has a slight headache; he suffers from great anxiety, but he is quite rational. Pulse 118 and soft. He has been purged twice.

The head was shaved, a small Blister was applied to the Epigastrium, and sinapisms to the feet. Twenty grains of Calomel were given at 6 P. M., and at 9, he took ten grains of Calomel, with four of Compound Extract of Colocynth, and as much Extract of Hyoscyamus.

Jan. 21st.—He passed a restless night; and has had two scanty, dark stools, since 6 P. M. yesterday. The pulse is 92 and very soft; the edges of the tongue are clean, but its centre is covered with a dry crust. His food to consist of tea, and arrow-root. A purgative enema was ordered.

R. Calomel. ʒss.—Extract. Colocynth. C. gr. v. at 7 A. M.

R. Pil. Hydrarg.—Ext. Colocynth. C. āā ʒss. at 10 A. M.

Small doses of Infusion of Senna with Salts to be given at intervals after 12, till free stools are procured.

Vesper.—The medicine has produced six black stools; the four last evacuations are copious, and resemble jelly. His tongue is moist but black; pulse 104 and soft.

R. Calomel. ʒ i.—Opii gr. i. h. s.

Jan. 22nd.—He had a tranquil night, with some sleep, but was once incoherent; he is now rational, and says he is better. Pulse 104, and more firm than yesterday: there is no morbid heat of the skin; the tongue is coated with a brown, dry, thick crust. The whole belly is elastic, tense, and full, and there is obvious hardness in the region of the liver.

R. Pulv. Jalap. Comp. ʒ i. at 7 A. M.

Ol. Ricini—Ol. Terebinth. āā ʒ i. at 11 A. M.

Infusion of Senna with Salts at 1 and 3 P. M.

Vesper.—The medicine has produced dark-colored, fluid, offensive evacuations, in moderate quantity. The pulse was 88 at 11 A. M., it is now 112 and regular: there is uniform warmth of the surface, and the belly is soft. His tongue is rather cleaner at its edges, but much coated with a brown dry crust in the centre. His gums are rather livid, but not swollen.

R. Extract. Colocynth. Comp. gr. viii.

Pil. Hydrarg.—Ext. Hyoscyami āā gr. iv. at 6 P. M., and repeated at 10 o'clock, with one grain of Camboge.

Jan. 23rd.—He slept, and has had four free stools during the night, of nearly natural color, with a slight tinge like rhubarb. Pulse 120 and soft. There is some tremor of his wrists. The tongue

is quite dry, and coated in the centre with a thick brown crust. The abdomen is softer, some hardness of the liver is still perceptible. The extremities are warm.

R. Pulv. Jalap. Comp.

Pulv. Scammon. Comp.—(Ph. Ed.) āā 3 ss.

Tinct. Sennæ 3 ss.

Aquæ Menth. Pip.—Aquæ Tepidæ āā 3 ss.—misce, to be taken at 7 A. M.

After 11 o'clock he was suddenly seized with anxiety and restlessness, without any evident cause, and died at noon.

On post-mortem inspection, the subject was not found emaciated. The brain was rather paler than usual, and void of vascular turgescence. A very slight serous effusion was observed in the ventricles, and below the tentorium. The tunica arachnoidea at the base of the brain was more opaque, and thicker than natural. Considerable venous congestion of the lungs was observed, and infiltration of serous fluid into the cellular structure at the base of the lungs. There was slight morbid turgescence of the vessels of the omentum and mesentery. Much vascularity was evident by the side of the spine, behind the peritoneum, and an appearance of extensive ecchymosis, near the pancreas, attracted particular attention. The liver was somewhat enlarged, softened, and friable; the gall-bladder was smaller than in its healthy state. The spleen was enlarged to about twice the healthy size, its texture was soft,

black, and friable. The coats of the stomach were pale, both externally and internally.

This case is an excellent example of the dangerous local affections that take place in those fevers which are contracted in districts abounding in marsh and jungle, like the *Sunderbunds*.

The free use of the lancet on the day of admission into Hospital, in a great measure subdued the cerebral symptoms.

Notwithstanding the appearances of debility and prostration, I think there is reason to regret that leeches had not been daily ordered to the epigastrium, in small numbers, from the day on which he was bled; and the strength might have been supported with small quantities of wine, and a little farinaceous food at short intervals, at the same time that the leeches should have been applied. Quinine should also have been administered on the 17th, 18th, and 19th, with the view of obviating the evening exacerbations, and of enabling the patient to bear the continued depletion by local blood-letting, by which alone we could expect to remove the morbid fulness at the epigastrium, and tension across the hypochondria, dependent on vascular engorgement of some of the abdominal viscera, and effusion into the cellular structure near the pancreas.

Extreme congestion of the lungs, liver, and spleen, and ecchymosis in the cellular structure near the pancreas, are the morbid conditions which may be prevented, or removed by early blood-letting, in those

cases where the patient applies for treatment at a time that depletion is admissible. When a period of six days has elapsed, during which the disease has run its course unsubdued by active depletion, we see how the system becomes oppressed; languor, anxiety and prostration of strength are then the predominant characters of the disease, the primary condition of which was local congestion running on to ecchymosis, or inflammation terminating in effusion. It is only in the early stages of such cases that we can adopt a treatment that is effectual and certain.

The altered appearance of the blood in many of those fevers which arise from exposure to the malaria of the jungles, is very remarkable, and merits careful investigation. Connected with this morbid condition of the blood, there appears occasionally some corresponding disorder of the solids, and particularly of the vascular system, which favors the prolonged and profuse oozing of blood from leech-bites.

The Natives of Bengal are not exempt from the slow insidious Fever of the cold season, which seems to occur more frequently among those who are in affluent circumstances, than among the poorer orders. I have had occasion to see the disease often in the lower provinces, and find it as obstinate and as troublesome to treat, as in Europeans. The cerebral symptoms of an urgent nature, are usually slow in appearing, but they are often more obstinate in Asiatics than in Europeans; while there is usually

much less hepatic disorder among the natives of this country.

The liver is rarely implicated to such degree as to run into abscess ; but in some seasons, Jaundice is by no means a rare sequel of the fever of this season ; and dysenteric affections are frequently found among the remote consequences of those Fevers which are prolonged till the cold weather approaches. The slow progress of Spleen Disease, and the existence of Œdema of the feet, are frequently observed among Natives, after Fevers in the cold season, as well as during the rains. A less active system of treatment is requisite in their cases, than in Europeans, in consequence of the peculiarities of their constitutions.

Fevers are very common among the Natives of this part of India, at all seasons of the year, but more especially during the rains, and cold weather, whatever be their occupation, or circumstances in life ; but they do not suffer from such violent and prolonged arterial action as Europeans ; and the tendency to visceral disorders of a fatal description, the direct result of active pyrexia ; bears no proportion to the frequency of important visceral diseases which attend the Fevers of Europeans.

We find the constitution of the Natives of Bengal soon subdued by those febrile disorders which come on after fatigue and privations, in damp unhealthy

situations, where the air is contaminated by malaria, and the water is bad ; under these circumstances they sink rapidly into a very low state.

Respecting the cure of the fevers of Natives generally, I have already alluded to the safety with which we may trust to moderate depletion, in most of their severe fevers, especially as regards blood-letting and leeches. The above statement of the slighter tendency to important visceral diseases of an inflammatory character, leads also to the conclusion, that mercury in considerable quantities, is rarely necessary in their fevers ; and experience fully supports this inference. In the greater number of their fevers, when cerebral symptoms and pulmonary congestion are not urgent, Natives require a very simple treatment ; and usually recover in a few days, by rest and mild aperients, such as their mild purgative decoctions named *Panchun* or *Aruckbadee* ; and by following their usual custom of taking no food, and using drink in very small quantities, as long as any degree of pyrexia exists. In their remittents, and almost all those febrile affections which come on after much exposure in unhealthy situations, the early use of Quinine, combined with mild aperients, is advisable. Protracted cases in which convalescence is imperfect, are much benefited by removal for some months from the station where they have suffered from disease.

Although I know the objections which Natives frequently make to blood-letting, I must repeat my

observation respecting the safety and utility of V. S. in the severer cases of their fevers, in which it can be employed at an early period after the appearance of cerebral affections. Much more may be said in favor of the application of leeches, in a larger proportion of their fevers, in which the lancet is not requisite. In a few very severe cases, where the inflammatory symptoms ran high, and required both V. S. and leeches, notwithstanding which, some degree of pyrexia with obscure cerebral symptoms continued, I have ordered the Fever Powder* with Calomel; and continued its use until the mouth was slightly affected by the mercury; and I have reason to be satisfied with the treatment.

The frequent repetition of very active purgatives is rarely requisite in the treatment of Asiatics who are labouring under fever, to the same extent as in Europeans. Plethoric Natives suffering from severe fever, who have had an active saline purgative, derive much benefit from two or three moderate doses of Jalap with Scammony, and two grains of Calomel in each dose: but prolonged use of very active cathartics is apt to be followed by prostration and

* *R.* Antimon. Tart. gr. ii.

Cretæ Præparat.—Pulv. Gum. Acaciæ,

Sachari Albi āā 3 ss.—Calomel. gr. xvi.—misce et divide in chart. xvi. One powder is given every three hours. Much care is requisite in making up this prescription: the Tartar Emetic and Chalk require to be rubbed in a mortar for an hour before the other ingredients are added.

coldness, more especially in those fevers which have a tendency to the remittent type.

The foregoing subdivisions of the Fevers of Bengal, have been adopted on account of the convenience which they afford for a particular description of the varieties that occur in the character and progress of those diseases at different seasons of the year; they also admit of pointing out with more precision, the treatment advisable to be followed in the various modifications of fever; and I trust that I have not in any instance separated diseases essentially the same. Some such plan seems consistent with the nature of the subject, and it is especially required in treating of the Fevers of Bengal, on account of the great variations of temperature and humidity of the atmosphere which occur in the course of the year, and to which I believe we must ascribe in some degree the peculiarities of our Fevers. This arrangement also coincides with the sentiments of Sydenham, who in alluding to the varieties of Fevers prevalent in Britain in his day, says, "I am convinced that the same method which cures in the middle of the year, may possibly prove destructive at the conclusion of it."

Diseases of the Liver and Spleen, as well as Dysentery, having been already considered; I have not been obliged to revert to the treatment requisite when those affections supervene in the course of Fevers.

NAKRA.

The Natives of this part of India are subject to a singular febrile affection, which though transient, and seldom or never fatal, is of a very severe and distressing description. It appears to consist of a sudden and violent congestion of blood in the schneiderian membrane, which extends to the mucous membrane lining the sinuses, of the frontal, malar, maxillary and æthmoid bones, with pyrexia which is rather remarkable for the increased rapidity of the circulation than for great augmentation of force of the action of the heart and arteries. The disease takes place suddenly, and the sufferings of the patient from pain in the sinuses, become very severe in the course of an hour or two. This affection is named by the Bengalees *Nakra* or *Nasa*; which literally means, the nose disease. It usually commences with a sensation of pain and distension within the nose, attended by extreme pain in the back of the neck, heat of the forehead, and excessive weariness and pain in the loins, and in all the joints. In a few hours, the pains are much augmented in the frontal and superior maxillary sinuses, and in the nose; but the headache and pains in the back and limbs are not at that time moderated. The eyes soon become red, a strong light is irksome; and much prostration of strength takes place. The thirst is usually very distressing, and the sufferings of the patient in the majority of cases are so severe, that he is soon obliged

to relinquish his usual occupations, and lie down. The pulse is in general rapid, but seldom very full or hard. I have observed it as frequent as 128, in a slight-made, elderly Hindoo, within three hours after the first sensation of uneasiness had commenced in the back of the neck and interior of the nose. The respiration is hurried but not laborious, and there is much anxiety, especially when the patient stands in the erect posture. If we look within the nostrils, the schneiderian membrane will be observed much swollen and inflamed. In a few rare instances, the complaint begins with a bilious vomiting. A burning heat of all parts of the body continues for two or three days, and seldom terminates by a critical perspiration.

The ordinary duration of this disease is from three to five days ; it attacks both Hindoos and Mahomedans, and slight-made persons do not seem more exempt from it than those of a robust habit : women suffer from the disease more rarely than men, and it is very seldom observed in children below ten years of age, or in men much above 45. Some Asiatics are never attacked with the Nakra during their whole lives ; while others have had this Fever severely once a fortnight for three or four months, and then were free from the disease for a very long period. More commonly those who have had the disease twice, are seldom exempt from its returns annually for several years ; but these attacks do not observe any regular periods. The Nakra occurs at

all seasons of the year: I believe it to be more common at the latter end of the hot weather, and during the rains, than at any other time. The disease is said to be induced by irregular habits of living, such as attending to business and going about in the sun, at hours which infringe on the usual periods of bathing and repose, and of taking food: sitting up late at night in earnest conversation on subjects inducing mental anxiety, is also supposed occasionally to bring on the disease. The Nakra is said to depend on a disordered state of the bile, and an impaired condition of the digestive organs, induced by the irregularities above alluded to; but it often occurs without any of these exciting causes, and the Natives have no distinct notion of its pathology; nor do I know that it has been the subject of very attentive observation by European physicians.

Medicine is very seldom employed for the cure of this complaint; the sufferers usually wait patiently for its spontaneous cessation, for they assert that its course is not shortened, and that the constitution is not assisted in overcoming the disease, by any medicines that have been tried. The Natives of Bengal have a custom of drawing some blood from the nose, which is done by thrusting pieces of rough-edged sharp grass up the nostrils; or by puncturing the schneiderian membrane with a sort of awl or needle. The quantity of blood drawn by these means seldom exceeds an ounce, and in general it is much less; but it affords remarkable and prompt

relief, and I believe, it is resorted to by the majority of the poorer people when they have this disease. They have an idea, that after once obtaining relief in this way, the pain of any future attack will be much more severe, if on the recurrence of the disease they do not employ the same means of cure.

I have never known an attack of the Nakra prove fatal; but I have been informed that severe affections of this sort are liable occasionally to be followed by the fever denominated *Biggar*; which is a disease remarkable for the intensity and danger of the cerebral symptoms, and it frequently proves fatal. The Nakra never terminates in suppuration, or ulceration, or in any chronic disease resembling *Ozæna*.

I have never met with this disease in Europeans, though some of its characters very closely resemble the fever which was epidemic in Calcutta in June, July, and August, 1824, and affected almost every Native as well as European in the place; but on questioning Natives subject to Nakra, and who suffered the Epidemic of 1824, I have always been told that the diseases are very different as far as relates to the feelings of the patient, and that the pain under an attack of Nakra, is much more severe than what the same persons suffered during the prevalence of the epidemic Rheumatic fever above alluded to. The only notice of any similar disease which I have met with, is that given by Dr. Benjamin Rush, at

the end of his work on the Yellow fever*. From the popular name of the disease, indicating that it is characterised by severe pain, and from the mode of treatment employed, the complaint mentioned by Dr. Rush may be supposed to have resembled the Nakra. He says, "There is a disease in North Carolina, known among the common people by the name of the *Pleurisy in the head*; it occurs in the winter after a sickly autumn, and seems to be an evanescent symptom of a bilious remitting fever. The cure of it has been attempted by bleeding in the common way, but generally without success. It has, however, yielded to this remedy in another form, that is, to the discharge of a few ounces of blood obtained by thrusting a piece of a quill up the nose." A person unacquainted with this disease, would be liable on first seeing a case, to suppose that the patient who was suffering from it was in some danger, at a time that the complaint required only a few days' rest, and little or no medical treatment.

* An Account of the Bilious Remittent Yellow Fever of 1793, in Philadelphia, 12mo. Edinburgh, 1796.

ANTIPHLOGISTIC TREATMENT.

THERE IS NO EFFICACY IN ANY PLAN OF MEDICAL TREATMENT, EXCEPT WHAT ARISES FROM PRECISION IN ITS EMPLOYMENT.—*Boerhaave.*

MANY of the diseases of this country being marked by violent inflammatory affections of various organs, which are rapid in their progress, and often fatal in their termination ; it is of the utmost importance that in such cases a suitable treatment should be commenced early, and pursued with steadiness and precision. I am therefore desirous of giving a concise statement of the views with which the principal remedies have been advised in the foregoing pages ; and of the manner in which they have been employed in practice in the fevers, as well as some other of the more dangerous acute diseases of Bengal.

Blood-letting.—This is the most eminently useful remedy which we possess in fever, and if properly employed, it is the most decisive in its effects. In general, when fever is attended with strong arterial action, the pulse being frequent, strong, and hard, the face flushed, and the eyes red ; while the patient suffers from ardent heat of the skin, head-ache, and other symptoms of determination of blood to the head, lungs, or abdominal viscera ; I advise the lancet to be used early, for the purpose of preventing the effects of local determinations of blood to various organs, and of subduing the pyrexia. The

quantity to be taken at once, and the frequency with which blood-letting is to be repeated, must be regulated more by its effects on the disease, than by any other precise rule. The objects in view, are effectually and permanently to subdue the morbid action of the heart and arteries, and to remove the fever, as well as the local affections that exist. There is very little use in bleeding so as to render acute disease less acute, and still allowing as much of the inflammatory affection to remain as shall slowly destroy the patient. The first bleeding from the arm may be considered to have proved beneficial, if while the blood is flowing, the strength and fulness of the pulse be reduced, the morbid heat of the skin diminished, and if a perspiration appear on the forehead, which was previously dry. We must carry the depletion to such extent as to subdue the important morbid affections for which the remedy is employed; and though we find the fever moderated by one bleeding from the arm, if the pyrexia be not subdued, it will be requisite to repeat the bleeding in four or six hours. In cases in which there is evidence of much local congestion and inflammation in the head, lungs, and abdomen, we cannot always expect to relieve the determination of blood to all those parts by using the lancet once. The first free bleeding usually alleviates the violence of the pyrexia, and all the worst symptoms, but it is the last bleeding, (and that often only to a small extent,) by which the disease is cured. If pyrexia

be alleviated, and only some morbid heat of the head or epigastrium exist after the V. S., we may trust to leeches and other remedies for the removal of the remaining local affection.

General blood-letting, in cases of ardent fever, is not only valuable on account of the promptitude and certainty with which the existing disease is removed by it, but when V. S. is performed early, it acts by preventing a morbid condition which takes place at the remote stages of fever, namely effusion; but after that condition is established, the disease is too often incurable. When blood-letting has been properly and effectually performed at the commencement of fever, we have no occasion for any complicated subsequent treatment, and there is no prolonged train of local affections, implicating various organs more or less essential to health and life. The effusions into the structure of vital organs, described at pages 318 and 319 of this volume, which are liable to occur at the ulterior stage of almost all bad cases of unsubdued fever; as well as the apoplectic symptoms, paralytic limbs, and abscesses, or more chronic inflammations of important viscera, giving rise to tardy convalescence, and often followed by dropsies and permanent organic diseases, are in most cases, all prevented.

Prompt and free depletion by blood-letting greatly assists the operation of some medicines, and renders many others unnecessary. By removing oppression of the brain, and thereby relieving torpor

of the bowels, V. S. often assists the operation of purgatives. When the late Dr. W. Saunders of Guy's Hospital, observed much difficulty in procuring evacuations from the bowels, in obscure febrile cases, he used to examine the interior of the eye-lids and surface of the conjunctivæ; and if vascular congestion existed there, and the forehead was hot, he would say, "I advise you to purge that patient with the lancet." By which phrase, he wished to express his opinion that purgatives would not act freely until general plethora and cerebral congestion were removed by bleeding from the arm.

The debility which is produced by early blood-letting, in severe cases of fever, is infinitely less, and of minor importance, than the distressing exhaustion, with disordered functions of important viscera, and congestion, which take place towards the conclusion of fevers of the same degree of violence, in which blood-letting has been neglected. A tardy convalescence, with protracted cerebral or hepatic disorder, defective appetite, and disordered digestive powers, afflict those patients for a long period, in whom ardent fever has been allowed to run on for many days. In proof of the efficacy of early blood-letting in the fevers of Bengal, and particularly in the Remittent Fever of 1833, I insert an extract from a note of Dr. French*. I could easily add to this note

* "The treatment of the Remittent Fever of 1833, has consisted (without many exceptions to the rule) in the abstraction of

sufficient evidence to remove every doubt that may have formerly existed on this subject; but the improved state of pathology and therapeutics in the present day, renders it unnecessary to go into any comparative disquisition on this subject. There can be no doubt of the necessity of blood-letting as a general practice in the severe cases of fever in this country: the question is, when and how the lancet ought to be used, so as to be productive of the most successful results. I have endeavoured to enter as minutely as possible into the details of this important subject, in the foregoing pages.

In using the lancet for the cure of fever, I invariably place the patient in the recumbent posture, bleed generally and locally, and repeated according to the nature and degree of the symptoms. The patients have invariably been bled in the recumbent posture; and to early and well-timed depletion, I am disposed to attribute our success in combating a fever, which, whether viewed as to its intensity or universal prevalence for a period of three months, has been unprecedented for twenty years or more in Bengal. I speak of the success of this treatment, when contrasted with the result of a different system, pursued in former years, when Remittent Fever was prevalent in Bengal. The number of cases of Remittent Fever treated in 1831, was 120, and the deaths were one in 4 and $\frac{2}{5}$. The number of cases of Remittent Fever treated in 1833, was 309, and the proportion of deaths was only one in 17 and $\frac{1}{2}$. In reviewing the practice followed, in the fevers of 1831 and 1833, the principal difference in the treatment would appear to have been in the general abstraction of blood from the arm during the latter period. Blood-letting was more frequently had recourse to in the fever of 1833.

because I am not aware of any benefit that follows the abrupt changes of the circulation which occur in fainting, and in the subsequent recovery from that state. In the ardent fever of the hot season, if we bleed the patient in the erect, or sitting posture, faintness is often liable to occur before we have obtained as much blood as is sufficient permanently to subdue the action of the heart and arteries, and to remove the fever. On reference to the condition of the patient in case 152, p. 249, of this vol. it will be evident that if the patient had been bled in the erect posture, we could not have obtained five ounces of blood from the arm at each time, before he would have fainted, and that quantity would have been totally insufficient to subdue the disease. In remittent fevers, faintness, from whatever cause it may be produced, is almost always found to have an unfavorable effect on the patient; it often retards recovery; and sometimes the faintness produced by undue administration of drastic purgatives at a late stage of the disease, has been followed by irrecoverable prostration.

If blood-letting be employed at late stages of fever, after much effusion has taken place into the structure of vital organs, by which the patient is reduced to a desperate condition, the remedy prevents no impending mischief, and too often cures nothing that already exists; on the contrary, when the disease has arrived at such a stage, the abstraction of blood often adds to the danger, and augments

the debility, without affording any relief. If we find a practitioner so indiscreet as to make it his habitual practice not to employ the lancet in the early stage of the more severe and dangerous fevers of India, can we expect that the same individual will evince any judgment, when he decides on trying that remedy for the relief of those dangerous morbid conditions which often exist at the latter stages of those fevers? The practitioners who only use the lancet at a late stage of the disease, tell us that they generally disapprove of blood-letting from the arm in fevers, that they never have recourse to that remedy if they can possibly avoid it, and that the few patients whom they have bled have died. However, the misapplication of this remedy, will not be admitted as a proof of its inutility, when it is used with decision and judgment; for when so employed, it is almost always found to be successful. After having said so much, let it not be supposed that I am an advocate for indiscriminate bleeding in the treatment of fever. In deciding on the use of the lancet in cases of fever, we must have due regard to the character of the prevailing diseases, the season of the year, and the constitution of the patient, as well as the state of his vital power at the time the remedy is about to be employed. There are many cases which do not require blood-letting, from the disease being so slight, that recovery takes place almost spontaneously, if the patient will take one or two purgatives, and remain per-

fectly quiet in a cool and airy room, and use no food but tea and water for a day or two. At the same time, let us advert to what has been pointed out in several preceding passages in this chapter, namely, that the practitioner is most frequently embarrassed in the treatment of those fevers which are at first slight, and creep on slowly and imperceptibly, till we find the patient in a state of the greatest danger; it is in these slow and insidious cases, when the disease is not removed in 24 or 36 hours, that we ought to decide on resorting to those means which seldom fail in the early stage of fever, the first and best of which undoubtedly is general blood-letting.

Sometimes fevers occur in Bengal, in which there is strong but transient re-action, without great power of the heart and arteries, accompanied by extreme prostration, and tendency to profuse perspiration, with more or less affection of the mucous membrane of the lungs. I allude to the influenza which occasionally visits Bengal as an epidemic, and there are often sporadic cases occurring, as the transient catarrhal fever of the commencement of the hot season. A man who would resort to general blood-letting in cases of *Influenza*, unless some very urgent reason for the abstraction of blood existed, would have little claim to be deemed a person of correct professional judgment. Aged persons of leucophlegmatic habits, who have been long resident in India, and those who have been

long subject to mental distress, do not in general require such copious depletion by blood-letting, when they are attacked by fever, as the recently arrived European does. Fever is subdued in these subjects by very moderate blood-letting, if it be employed early in the disease.

At a protracted stage of fever, delirium cannot be deemed a sufficient reason to authorise blood-letting from the arm, unless there be other urgent co-existent symptoms, which require that mode of depletion. It often happens, that on the 7th or 8th day of fever, a patient has occasionally slight delirium; but when spoken to, he answers most questions correctly; he will say that he suffers no pain, though there be a very slight flush on the cheeks and some morbid heat of the forehead; at the same time that the pulse is rapid and weak, and the hands and feet cool and pale. These symptoms depend on effusion in the brain, whereby sensibility is blunted, the morbid tension and fulness of the gorged vessels moderated, and the more urgent symptoms are rendered obscure by the cerebral oppression. In this stage of fever, blood-letting would be destructive.

Local Blood-letting. The application of leeches has been found a most valuable resource for the alleviation of those local affections dependent on congestion or sub-acute inflammation of limited extent, which may remain after general blood-letting has been properly employed. Leeches are in general found

inadequate to supply the place of the lancet, and are unfit to be trusted to in plethoric subjects, or in cases of fever where there is much arterial re-action, such as occurs in the majority of the cases of severe fever which we find in India. When there is occasion to take 20 or 30 ounces of blood from a patient at the commencement of fever, it is bad practice to employ leeches for that purpose. The abstraction of that quantity of blood by leeches is much more debilitating, and much less efficacious in subduing fever, than the same quantity of blood taken from a vein. And in any case where there is strong action of the heart and arteries, and much local congestion or inflammation, it is unreasonable to attempt to treat such cases by leeches, without first having recourse to general blood-letting. The most judicious mode of treatment is first to diminish the quantity of blood in the system, and to subdue the morbid action of the heart and arteries; after which, the efficacy of leeches in draining the capillary vessels is very remarkable; then they usually accomplish the removal of the remaining local congestions and inflammations, which could not be overcome by repetition of V. S. In some protracted cases of fever, where early treatment has been omitted, and the patient is low and weak, and the action of the heart and arteries is feeble, abstraction of blood must be resorted to with caution, and patients must be carefully watched after its employment, especially in paroxysmal fevers.

Purgatives. The utility of purgative medicines in fever depends not only on their efficacy in evacuating the intestines, but on their effects in alleviating the plethora of the vascular system, and reducing morbid congestion in the vessels of the mesentery, liver, and spleen. Some purgatives (and especially Jalap, combined with Cream of Tartar,) have the property of promoting the activity of the absorbent system, and thereby they greatly tend to aid the removal of the sero-albuminous interstitial deposit*, which often takes place in the cellular struc-

* It is on this principle, that purging with the compound powder of Jalap is found to be so generally useful in cases of dysentery, in which, one of the most important morbid conditions often exists *exterior* to the intestine, and consists of a degree of interstitial deposit in the cellular texture, at the root of the mesentery and mesocolon. In dysenteric cases, the Jalap purgative, with Cream of Tartar, acts primarily by producing a copious secretion from the mucous membrane of the small intestine, and thus relieves the congestion and turgescence of the vessels of the colon, which is known to be the principal seat of the ulcerous disease and inflammation in dysentery. Jalap also, like some other nauseating purgatives, produces activity of the absorbent system, and thus promotes the removal of that particular morbid condition above-mentioned. At least, such appears to me to be the mode in which Jalap proves beneficial in acute dysentery. Theoretically, I should be averse to the frequent use of purgatives in that disease, but practically, I am obliged continually to have recourse to them, and I am unable to offer any better explanation of their *modus operandi*. The Ipecacuanha and Extract of Gentian are the remedies which I usually order in the treatment of dysentery in natives, and in them, in particular, I often try to

ture, at the root of the mesentery and mesocolon, at the same time with vascular engorgement of the liver and spleen. A combination of these morbid conditions, very often causes a tumid state of the epigastric regions and hypochondria in fevers, which remains for a long time after the bowels have been completely emptied. When a tumid state of the epigastric region is prolonged from such causes, we may go on with the use of purgatives to the extent of producing three or four stools daily, provided the evacuations from the bowels be feculent, and there be no symptoms of irritation of the mucous membrane of the intestinal canal, and particularly of the small intestines ; for when that takes place, a persistence in purgatives is injurious, and they must be omitted ; and should a tendency to constipation occur soon afterwards, enemata, or the mildest aperients only can be employed. In any cases of fever which have not been attended with much fulness at the epigastrium, but in which cerebral symptoms have been predominant at an early stage, and some degree of the same symptoms are prolonged to a late period of the disease, especially if the fever be of the remittent kind ; a persistence in the frequent

omit purgatives altogether ; but in those native families where I have often prescribed, I have been repeatedly told, " Sir, we know that your pills for dysentery are very good ; but we never find that they cure the disease so certainly, as when you also give the small grey draught" (a mixture containing Pulv. Jalap Comp.) " once a day, or once in two days."

repetition of drastic purgatives is often exceedingly injurious, by producing watery stools, and great exhaustion of the system with prostration of strength, in many respects allied to the collapse which takes place after profuse watery evacuations in Cholera. One or two drastic purgatives, injudiciously administered in those low cases of remittent fever which occur towards the conclusion of the rainy season, will sometimes reduce a patient to an irrecoverable state of exhaustion. See the caution with respect to the administration of purgatives at pages 301 and 320 of this volume.

Nothing can be more deceptive to the young practitioner, or lead to more injudicious treatment of the patient, than the instruction to continue the daily exhibition of active cathartics, as long as dark-coloured evacuations are procured. In many cases, where active cathartics are frequently repeated after the bowels have been completely evacuated, a prolonged irritation is maintained, and the medicines are daily producing the symptoms which we are vainly endeavouring to cure; while we are at once keeping up a state of irritation and producing exhaustion. It is in such cases often better to omit all medicine, to give small quantities of farinaceous food, to have the body sponged with warm water, and to advise complete quiescence. If there be then any tendency to paroxysmal return of fever, small doses of Quinine will remove it, and after the *medical irritation* of the bowels has subsided, we shall be

able to judge whether it be requisite to correct the state of the secretions by the exhibition of Blue Pill, or simply by mild aperients and bitters.

When directing the employment of purgative medicines in the treatment of fevers, we find that many individuals do not bear the operation of active purgatives, without distressing exhaustion. The greater part of the people of some countries suffer much from the repeated administration of strong cathartics. Natives of France, Spain, and Portugal, generally, do not well bear such active purgatives as are requisite for most of the natives of Great Britain; and Asiatics, when suffering from fever, rarely or never require such strong or such frequent doses of purgative medicine as are usually ordered for Europeans.

Mercury. I will not attempt to detail all the beneficial effects which may be incidentally produced by the administration of mercury in the treatment of the fevers of Bengal. It will be sufficient briefly to state the views with which some of the preparations of mercury have been recommended in this chapter.

The administration of Calomel, in combination with purgatives, or on the night previous to cathartics which are ordered in the morning, is so general a practice in this country in the early stage of almost all fevers, that probably there are few medical men in India who could undertake to say what would be the result of altogether omitting the use of large

doses of Calomel at an early stage of the more violent fevers of this country. Although Calomel may not be necessary in all cases, my own impression is in favour of administering that remedy at the early stage of fever, and after blood-letting. Under the influence of this opinion, I usually prescribe Calomel at night, and order the purgatives which are requisite at an early stage of these diseases on the next morning.

It is at the more remote stages of severe cases of fever, in which the patient has not been placed under treatment sufficiently early; or when from the violence and rapidity of the disease, effusion has taken place in the brain, or in other organs essential to life, that mercury is pre-eminently useful. If the effusion be in the brain, sensibility is blunted, and there is general torpor, occasionally combined with constipation; if in the abdominal cavity, there is increased tension and tumefaction at the epigastrium, and not unfrequently, watery black stools. This is a most dangerous stage of disease, and requires the assiduous employment of mercury, the effect of which as an evacuant, is in such cases infinitely inferior to its important office of promoting absorption of the sero-albuminous interstitial deposit which has now commenced, and in subduing the remains of fever. If there be any morbid heat remaining, I have usually given Calomel \mathfrak{ss} ., combined with four grains of antimonial powder, every six hours; and on every intervening hour, a small dose of

the weak solution of Tartar Emetic is administered. If the morbid heat be subdued, Blue Pill is generally given in doses of 12 grains, three or four times a day ; and should diarrhœa be present, half a grain of opium is given with every 2nd dose of Blue Pill ; and an anodyne enema is ordered at bedtime. In some instances in which a favorable change is not quickly produced, it is advisable also to have recourse to mercurial ointment ; which may be rubbed to the extremities, and hypochondria. The most of these dangerous cases, where only a slight degree of effusion has taken place, and in which the lancet has been used at an early stage of the disease, recover ; the greater number of similar cases, in which early use of the lancet has been neglected, die. The fact is, *early* blood-letting in a great measure prevents the occurrence of the effusion.

It sometimes happens that in cases where there has been a tardy recovery after fever, we may have recourse to mild mercurial alteratives with benefit ; and that is when convalescence has been established for several days, and a slight increase of food is allowed, but the patient finds he has no appetite, the stools are scanty and of dark color, the nights are restless, and there is some thirst. In such cases, six grains of Hydrarg. cum Creta, with one grain of Calomel, every night, a mild aperient of Cheltenham salts, or Epsom salts, in the morning, in tepid water ; and a small dose of the Sulphate of Quinine at noon, usually greatly improve the patient's condition

in the course of a few days, if too much food be not allowed.

The use of Mercury proves in general unavailing at that stage of fevers in which profuse cold perspirations, coldness of the extremities, and prostration of strength exist, without distinct symptoms of local inflammation: at the same time, that there is much exhaustion, anxiety, and lowness of spirits. I will not assert that Calomel is invariably useless in fevers where these symptoms prevail; but I have very often found it injurious in such cases; conducive to a prolonged and distressing prostration of vital power; productive of the continuance of watery black stools, and of no avail, even when pushed on until the most free salivation had taken place.

Quinine and Bark.—The vast utility of the sulphate of Quinine, and of Peruvian Bark, or its preparations, in the treatment of fevers, need not be discussed here. I will merely allude to the mode of employing those remedies, which has been advised in this work. The Sulphate of Quinine has been found of great benefit, in all cases of debility succeeding to fever; but it is indispensable in the low forms of remittent, and in fact in almost all the worst cases of the remittent fever of marshy districts within the tropics. In those forms of disease, a few doses of 4 or 6 grains, at the remission, are often sufficient to save life. In milder cases of protracted disease, in which the remissions are indistinct, in patients whose strength is much reduced, we can often

administer a few small doses of Quinine during an imperfect remission, so as to alter the character of the disease, and enable the patient subsequently to bear those remedies by which the predominant local affection may be subdued, and the disease cured.

In ordinary Intermittents, the great efficacy of Quinine is so generally acknowledged that, it is unnecessary to allude to that subject, except to say that I believe much larger doses of Quinine than are requisite, are frequently given; and the administration of this medicine is often prolonged when there is no important change in the disease impending, and in many cases in which other remedies might answer as well or better.

During convalescence from Intermittents, as well as continued fevers, the decoction of Cinchona, and the strong infusion of Chiretta, combined with a very small quantity of Epsom salt, appear often to promote complete recovery better than the Sulphate of Quinine.

When large and repeated doses of the Sulphate of Quinine are administered, so that about 20 grains of that article are taken within 12 hours, it often produces a peculiar affection of the head, consisting of a sensation of distant noise, combined with deafness; some of these patients suffer from vertigo, and in a few of them the medicine has had an effect on the sight, so that near objects appeared small and distant. These consequences of large doses of Quinine, are observed in patients whose fevers are in all other

respects most favorably influenced by that remedy. I have never known any permanent evil consequences to follow these unpleasant cerebral affections produced by the Sulphate of Quinine.

It appears to me, that Sulphate of Quinine is sometimes unreasonably employed, under the idea that it will cure the early stage of inflammatory fevers. I am quite certain that children are often distressed by head-aches, from the use of Quinine, when they are pale, and suffering from some slight congestion, with sub-acute internal inflammation, which would be cured by an emetic and mild purgatives; whereas the complaint is prolonged by Quinine. The errors committed by the improper employment of Quinine are more liable to be injurious in febrile cases, than errors from the excessive use of Calomel; because the latter is generally combined with a system of treatment essentially antiphlogistic; while Quinine is apt to be combined with a treatment essentially tonic, and an invigorating diet of animal food.

Antimonials.—In the inflammatory fevers of the hot season, antimonials are valuable adjuvants to the other remedies already noticed. The solution of Tartar Emetic is very useful in allaying morbid heat, in producing perspiration, and in moderating the increased action of the heart and arteries. The preparation in common use, is a solution of one grain of Tartar Emetic in one pint of water; of which an ounce may be given every hour. In the worst ardent

fevers of the hot season, half an ounce of Epsom Salts added to the above solution of Tartar Emetic, and the mixture given in doses of $\frac{3}{4}$ i., every hour, is often very effectual in reducing morbid heat of the skin, and moderating arterial re-action. A very large proportion of the ordinary fevers of natives of Bengal, require hardly any other remedy except the Emeto-cathartic mixture; and if a double or treble dose be given at the commencement, the fever is often subdued in one day. In the remittent fevers of the rainy season, both in Europeans and natives, the addition of Epsom Salt is sometimes dangerous; and I have known stronger Emeto-cathartic mixtures prove fatal, by bringing on a state similar to the collapse of Cholera.

Cold Affusion.—In many cases of fever, this remedy is very effectual; the time at which it may be used with the greatest benefit, is after active depletion by the lancet and purgatives, and before Mercury has been employed to affect the system. If the cold affusion be used at that period, it very often prevents that succession of morbid changes which renders the free use of Mercury, and a prolonged medical treatment, necessary. The effects of this remedy are detailed at pp. 244 and 245 of this volume, and case 154.

Diet.—The importance of a regulated diet, during fever and other acute diseases, as well as at an early period of convalescence, is generally acknowledged; but it is seldom that a sufficiently strict system of

abstinence from food is followed ; therefore the removal of fever is often retarded, and relapses very frequently take place during convalescence.

At the commencement of inflammatory fever, the patient has no occasion for anything but his medicine, and a cup of tea twice a day ; if thirst be urgent, a wine-glassful of water, mixed with a table-spoonful of the weak Antimonial Solution, (which is made in the proportion of one grain of Tartar Emetic to a pint of water,) may be drank once every hour. If this plan of abstaining entirely from food be followed, there will be much less occasion for frequent repetition of purgative medicine, and much earlier convalescence from fever, than when a variety or considerable quantity of food and drink is allowed. In cases in which it may be considered proper to advise a more free use of drink, Soda Water is unobjectionable, but the quantity of it which would be drank by some patients, if they were not restricted to small draughts, would often be injurious.

After the second day of fever, a coffee-cupful of arrow-root or thin gruel may be in most cases allowed twice a day, in addition to what is mentioned above. Some stages of remittent fever require wine on the accession of particular symptoms, which are explained in the section of this work on that description of fever ; and at the late periods of almost all cases of protracted fever, we frequently meet with cases in which some wine is proper. The greatest danger often arises from taking too much

food at an early stage of convalescence, when a feeling of debility exists, but when acute local affections have so recently and so imperfectly subsided, that they are easily reproduced. It is then that the weakest chicken-broth would be injurious, and retard recovery, although tea and bread may be liberally allowed, and sago or gruel may also be taken in moderate quantity. The greater number of relapses after fever, arise from a premature indulgence in food.

Most patients require restraint respecting food, during convalescence, small quantities of wine with gruel, may occasionally be proper, in cases where broth would be injurious. It is often requisite to represent to patients and their friends, the wide difference there is between moderating the symptoms, and curing the disease; and also, that a period must elapse after acute disease has ceased, before a patient can be deemed fit to use the food to which he has been accustomed when in health. In fact, we have to point out, that in many cases, after our remedies have produced their best effects, they only put the constitution in a condition to overcome disease; for which purpose, some time and a very moderate diet, with quiescence, are requisite.

ON THE CONSTITUTIONS OF NATIVES OF INDIA.

IN the course of above two centuries, which have elapsed since the first charter was granted to an East-India Company, the peculiarities of the constitutions of Asiatics, must doubtless have attracted the attention of many of the highly talented medical men who have been from time to time employed in the public service, or who have visited this country. Unfortunately for their successors, whatever observations may have been made by them relative to the peculiarities of the constitution and temperament of the various classes of natives of this country, and such information as they may have derived from their Asiatic friends and medical brethren, have perished with those individuals whose attention and industry may have been directed to this subject.

Among the vast population of British India, considerable variety of temperament and constitution, undoubtedly exists in the different castes of the Hindoos, and in the sects of the Mahomedans, as well as among those who do not strictly belong to either of those races of people. The inhabitants of the north-western districts, where the soil is dry, as well as the Rajpoots more towards the central parts of British India, subsist principally on wheat, and live in an atmosphere which from being dry

for a large portion of the year, is healthy even in the hot season ; they are in general a stronger and more hardy race than the natives of most other parts of the country. On the contrary, the inhabitants of Bengal proper, and of Assam and the more eastern and S. E. parts of the British Indian Empire, are in general a less robust race of men. This may arise partly from the inhabitants subsisting principally on rice ; and partly from the climate which is damp and unfavorable to health, the rainy season being prolonged, and the atmosphere contaminated by exhalations from swamps and districts intersected by rivers and creeks ; the predominant character of the country being marshy and liable to inundation. There are however many individual exceptions to the general constitution of the race, at either extremity of the country ; and in Bengal we see many families of superior stature, robust appearance, and hardy constitution.

I will not here venture on any observations respecting the mental character of Asiatics, any farther than to allude to the patient perseverance, and shrewd observation of all classes, whereby they become soon acquainted with the disposition and characters of those with whom they have much intercourse, and in the management of whose foibles they naturally possess the most consummate address. The mental capacity of Asiatics, can only be estimated by those who have had most ample opportunities of being acquainted with them.

The native population of Bengal, in general, must be considered a handsome race. They possess in common with the most distinguished inhabitants of Europe the Caucasian conformation of the head, the sides of which are in many individuals somewhat compressed. Their features are regular and well formed, with an expression of mildness and intelligence. I have already alluded to the small size and slight frame of a great proportion of the natives of the lower provinces, but even here we find many, who as well as their more favored countrymen of the upper provinces, are of good stature and elegant proportions, and remarkable for grace and dignity of deportment.

It is not my intention at present to enter on any disquisition of the more minute peculiarities that may be observed in the Afghan race in the north of British India, or of the Parsees at Bombay and Surat, who certainly differ much in aspect from the Gentoos and from many classes of the Hindoo population of central India, and still more from the ordinary native of Bengal.

Among the inhabitants of the northern frontier of British India, and especially towards its western extremity, the affinity to the Tartar conformation of person and cast of features may be observed, especially in the natives of Kemaon, and as we proceed towards the east and S. E. frontier, we find a very large proportion of the people in whom the Chinese expression of countenance, and of general

appearance is predominant. Still in the great variety which this wide range affords, there are some general traits which must always attract attention.

The patient endurance of labor in any occupation to which they have been accustomed, (with but little rest and little food,) to which Asiatics can submit, is very remarkable. The capacity of enduring labour and fatigue does not seem always to bear relation to the usual quality or quantity of their food, or habitual mode of subsistence. The Dandy or native Hindoo Boatman of the Hooghly and Ganges is ill paid, and in general has but one meal of rice per day, besides a handful or two of dry grain, or of *khoe*, (parched rice,) nevertheless he can perform a laborious duty, daily, for several months.

The effect of different states of the functions of the skin, on the condition of internal organs in natives, appears not to be regulated by exactly the same scale of sympathies, and the external and internal organs do not seem to exercise a corresponding mutual influence to what exists in Europeans. Whether this arise from their habits of life, or from peculiarities of original conformation, remains to be ascertained.

Some of the habits and customs of Asiatics, which they either find it necessary to adopt in consequence of peculiarities of constitution, or convenient to follow, from long usage and the influence of various circumstances on their health; as well as the effects of remedies, and of some of their modes of domestic management during disease, appear to

be worthy of consideration. It is by the careful observation of these circumstances, that we may be enabled better to understand the nature and character of their diseases, and to adopt a proper system of treatment, when called on to undertake their cure.

The loose and flowing garments of the inhabitants of Bengal, and the custom of a large proportion of the people, of having the lower extremities, and indeed the greater part of the body uncovered except on occasions of ceremony, must have some influence in altering the relation of the circulation of the blood on the surface, and the sympathy of the skin with the circulation in internal organs. This modified relation of the functions of the skin with internal organs, in natives, does probably influence in some measure their susceptibility to some kinds of disease, and ought not to be overlooked when we decide on the mode of treatment which we think it advisable to adopt for their removal.

The above observation relative to a modified relation of the skin with internal organs, corresponds with what we see every day in the cold season, and in fact in all seasons. There are from 25 to 30 thousand people who bathe every morning in the river Hooghly, at Calcutta and its vicinity; they all wash their muslin clothing at the time of bathing, and with very few exceptions, both men and women walk home in their wet clothes; some of them to a distance of two or three miles. It is consistent with

their religious ceremonies and customs to bathe more frequently in the month of November than at any other season of the year, and the morning air is then usually cold; notwithstanding which, they never contract disease by such prolonged exposure in their wet clothes, in a manner which I am satisfied would produce illness in nearly half of any given number of Europeans who were exposed to similar circumstances daily for one month, at the cold season. I have very often inquired of natives, if they ever knew any instance of sickness from thus wearing their wet clothes, and have been invariably told that illness from such a cause is quite unknown among them.

The daily use of the cold bath, and the general application of oil to the surface of the body, before bathing, may also have produced some permanent influence on the functions of the skin, and on its reciprocal sympathy with other organs. The common oil of mustard seed is used by most people, and it contains a considerable quantity of vegetable mucilage, in which much of the pungent principle of the mustard is suspended. The more wealthy natives often use finer and more expensive oils, according to the effects intended to be produced. Some of their oils in which fragrant flowers have been steeped are considered very cooling to the body.

Frequent bathing is a general custom among the natives of Bengal, when they are in good health, and is observed as a religious ceremony, as well as

for comfort. There are many of them, who, if they omit bathing according to their regular custom, suffer from uneasiness, and general irritability, and neither have refreshing sleep, nor comfortable digestion. Nevertheless, the greater part of the natives of this part of India, when suffering from any serious disease, and more particularly during the continuance of fever, cannot be induced to admit the contact of water*, they will not even wash their faces and hands. They say that fever arises from cold, they imagine that a portion of cold has entered the body, and produced the fever, and a principal object in their opinion is, *to take out the cold*. If a man has fever and head-ache, they bring a small pan of burning charcoal near him, and the attendants heat their

* Notwithstanding these opinions respecting the contact of water during fevers, some of their practitioners occasionally use cold affusion as a desperate resource in remote stages of fever when cerebral effusion is impending, and sometimes when it is actually existing. I allude to one of their modes of treatment for that description of congestive fever which they denominate *Biggar*, in which they administer the *bees baree*, or some description of stimulant poison : this produces general excitement, bloodshot eyes, and heat of every part of the surface with quick and sometimes strong pulse, and almost always a hurried respiration. When an extreme degree of general excitement of the system, and of uniform heat of skin has been thus produced, they give food and drink of the most cooling description, and pour cold water over the patient. I need hardly add, that few recover after the employment of such treatment, at that stage of disease ; and those few who do survive, have in general the constitution permanently impaired. The Byds frequently have recourse to this treatment, which I believe is never followed by the Hakeems.

hands repeatedly, and apply them when hot to the head: this is their dry fomentation for taking out the cold!! They fear that the contact of water would cause a return of fever, and even during an early period of convalescence, they think the pores of the skin are more open than common, and if the body and limbs be then washed with warm water, or even rubbed with a towel dipped in warm water, some cold may enter at the pores of the skin, and again produce fever, which they say then often commences with shivering, and frequently proves violent and difficult of cure. Thus they are in general precluded from the use of a remedy which might be most useful in many of their fevers.

So general is the custom observed of not bathing during fevers, or indeed while they are suffering from any severe disease, injury, or wound, that if we inquire after the health of a Mahomedan soldier who has recently recovered from a severe wound, he will usually answer, *Ghosul-i sihut kurdum* غسل صحت کردم which literally is, I have bathed on my recovery, or Having recovered, I have bathed: alluding at once to the general impression, that his having resorted to the bath, was a proof that he considered his recovery complete.

Exposure to a humid atmosphere, is often liable very suddenly to produce severe disease, which is usually some modification of fever. Natives of the upper provinces, on removal to Bengal, are very often found to have the health impaired in a few

months, which they generally ascribe to the unwholesomeness of the water which they drink.

It appears to me that the modified sympathies, and peculiar relations of the surface of the body with internal organs above alluded to, is connected with a corresponding modification in the functions of respiration, capillary circulation, and the evolution of caloric in natives; as well as with their capability of enduring high temperature, which are deserving of consideration. The detail of my observations on these interesting circumstances need not be brought forward here; it will be sufficient that the attention of medical men be directed to these subjects:

We are not at present well acquainted with the minute varieties of organization, on which a modified scale of susceptibility of the nervous system of natives, or of morbid action of the heart and arteries when the person is exposed to the exciting causes of disease, may depend. The peculiarities now under consideration, are so constantly found to exist in nearly the whole race, that we must ascribe them to some common case, some provision of nature which enables the native who bathes in the morning in the cold season and allows his wet clothes to dry on him without inducing disease, also to sleep under the direct ray of the sun in the hot season with impunity, covered only by a common white muslin cloth. I believe we must seek for the cause, partly in the

peculiar structure and functions of the skin, and partly in habitual exposure, and their mode of living; for we find that natives not accustomed to exposure, are liable to contract fever if they be subjected to much fatigue in the sun, and then cerebral symptoms are often urgent, and the affection of the brain frequently proves fatal.

Perhaps the peculiarities of constitution, and the modified condition of the functions of various organs now alluded to, may account for the susceptibilities of natives of Bengal to some diseases which are seldom or never known to affect Europeans; and may enable us to explain the causes of some peculiarities in the nature and degree of the local affections which occasionally occur among Asiatics, when they are suffering from those diseases which are common to them and to natives of other countries. With respect to the first, I allude particularly to the *Nakra*, which has been already described; as well as to the *burning of the feet and hands*, a disease common in natives of Bengal, sometimes commencing without any other previous or coeval ailment, though it is often preceded by fever, protracted dyspepsia, or mental anxiety. This symptom is not to be deemed itself a disease, but it is the indication of some obscure disorder, the nature and causes of which we may hope shortly to find elucidated by the promised publication of Mr. Malcolmson. This complaint in many instances causes exceeding distress, and continues unabated until the patient

becomes emaciated, although there be in most cases hardly any symptom of disease which the physician can recognise, while the patient is suffering from the most intense and unceasing sensation of burning, which is experienced in his feet and hands; so that persons unacquainted with this disease, are apt to suppose, that the complaints are feigned.

The *Sool* is a peculiar description of Chronic Colic, already alluded to in the chapter on Dysentery; the disease is not common among Europeans, indeed I believe no malady exactly similar, ever affects them. The peculiarities of this disease are, the intensity of the pain, and its periodical return at nearly the same part of the abdomen, unattended with pyrexia, or distinct symptoms of local inflammation, and not accompanied by complete obstruction of the bowels.

The sero-albuminous effusion which takes place in the cellular structure at various parts of the body, but most frequently in the lower extremities, and in the scrotum, connected with periodical returns of fever, has I believe, rarely been observed in Europeans; I have seen a remarkable case of this affection in a man of the mixed Indo-Portuguese race, whose ancestors, there was reason to believe, must have been for a very long period permanent residents in this country; and his appearance indicated that he inherited a predominant portion of Asiatic blood; he was tall and thin, and of very dark complexion. This man came to the

General Hospital, suffering from periodical returns of irregular intermittent fever; and the local affection was confined to the cellular structure of the left breast, where there was some diffused swelling, or thickening of the cellular substance, and a small depressed cicatrix. He said, that on each return of the disease, the third or fourth paroxysm of his fever was generally severe, and at the commencement of that hot fit, the cicatrix opened spontaneously, and a quantity of limpid fluid flowed out, sometimes in drops, but occasionally in a minute stream. I have seen above 12 ounces voided in this manner, within an hour; and in a short time, the fluid coagulated firmly. This discharge in general alleviated the febrile symptoms, but sometimes it was succeeded by continued fever for several days; under either of these circumstances, the discharge was usually followed in a short time by a cure of the fever, and the patient remained well for several months. This man had no symptom of *Bucnemia Tropica* on any other part of his body, and with the exception of the slight thickening of the cellular structure at the left breast, he appeared to be free from disease.

I have repeatedly observed similar affections of the scrotum in Hindoos, who were suffering from protracted paroxysmal fevers; and although the disease occurs most frequently in poor people, I have seen respectable and wealthy natives, who lived in good houses, subject to this complaint. A few years ago, a

highly educated Asiatic of this city, who was himself afflicted with the disease, gave me a most excellent account of this malady as it occurs among his own countrymen. In his case, the fever was an irregular intermittent, the earliest attacks of which had been attended with serous infiltration into the structure of the scrotum. The fever seldom returned oftener than once in four months, and was most apt to recur about the beginning of the rainy season, and at the approach of winter. He had been subject to it for above eight years, and at each time that the disease returned, the scrotum became swollen, and the paroxysms of fever were repeated daily for about ten days ; at the end of which period, a discharge of fluid spontaneously took place from an aperture in the scrotum, from which it flowed in a small stream. On the next day after this discharge, he commonly had an attack of continued fever, which was not very severe, but it continued about a week, and on its subsidence he retained good health for three or four months. This disease is named *Bat-jer* (বাতজ্বর) in the Bengalee language, and *Nuzlah* (نزلة) in the Arabic. An interesting account of this fever has been published by Dr. Goodeve, in the 7th volume of the Transactions of the Medical and Physical Society of Calcutta. He found the disease very prevalent in the vicinity of Midnapore. I have seen a precisely similar affection in the upper provinces many years ago, and from there being names of this disease in the Sanscrit, Hindee, Bengalee, and Arabic

languages, it must have been known in every part of India.

The *Bucnemia Tropica* or Cochin leg, is a modification of the same complaint, the progress of which disease is in general attended at its early stage with returns of fever once or twice a month, but in some instances, it appears to be a more chronic disease from the commencement*, and seems to be in many respects different both in the local affection and in the nature of the fever, from those cases in which the fluid is occasionally evacuated.

The natives of India are certainly much less liable to abscess of the liver as a consequence of fever, or from any other circumstances, than Europeans are in this country; and many of the local congestions and inflammations which occur during their protracted fevers, are endured for a long time by the natives of Bengal, and the patient sometimes recovers, almost without remedies, from advanced stages of fever attended by local affections, a similar degree of which would prove fatal to Europeans. In like manner, it has been observed that the

* This disease is not absolutely peculiar to Asiatics, for I have seen a case in a woman above 70 years of age, who was born in Europe, both of whose legs were affected with the *Bucnemia Tropica* to an extreme degree, and she had at the same time several of the white spots of leprosy, (بعاق *Boak*, Arabic;) on the sides of her neck and on the upper part of the chest. She had been 52 years in India, and had a daughter who was about 40 years of age, who up to that time had not been affected with either the *Bucnemia*, or the white leprous spots.

natives of this country often recover from the severest injuries, wounds and lacerations. Referring to *symptoms*, they very often complain of the principal pain which they suffer during fever, being seated in the feet or hands.

In the cold season, when many Europeans are subject to inflammation and abscess of the liver, we find the young and plethoric Bengalee who is attacked with fever, sometimes suffers from large and painful abscess of the arm, thigh, buttock, or leg; while it is not uncommon to see old people of the same race, at the same season as well as during the rains, afflicted with a very painful description of chronic carbuncle on the back of the neck, or on the back, which often terminates fatally. They are also liable to a similar deep-seated disease of a more acute kind on the thigh, and old people are also subject to a chronic ulceration of the sole of the foot, which is deemed a very formidable disease. It is slow in its progress, and penetrates deeply into the sole of the foot among the tendons, going even to the bones. The base of this ulcer is indurated, the edges are often slightly raised and inverted, and the surface is of a pale or tallow-like appearance; and it is excavated as if a portion had been cut out with a sharp knife. This is considered a malignant disease, and its cure in old people is very difficult. The ulcer rarely spreads very widely so as to contaminate neighbouring parts to any great extent.

Adult natives of India, are much less liable to common boils than Europeans, but they suffer from various forms of Psoriasis and Lepra, and some of the exanthemata are very common and very destructive in Bengal, particularly the small-pox, (বসন্ত *Busunt*;) but the measles (হাম *Haum*,) is in general a mild disease, and itself rarely fatal; in some seasons it is followed in native children by protracted dyspepsia and emaciation, occasionally attended with slight hectic fever; which is the more remarkable, as Rubeola is in general a very trivial disease even among European children in the lower provinces. However, the degree of pyrexia and intensity of the eruption, seem to depend in some degree on the season at which the disease occurs; for an epidemic rubeola at the middle of the cold season, usually presents a much milder eruption, but a more severe affection of the mucous membranes than when the disease occurs at an advanced period of the hot season.

The treatment of Bengal women after parturition is so peculiar, and the consequences of that treatment are so often fatal, that I will give some account of it, followed by a description of the Bengalee custom of sunning their children when they are one month old.

When symptoms of labour commence, the parturient female is placed in a small room, which is heated to a suffocating degree, (seldom below 90° of Fahrenheit,) by a wood fire. Child-birth is in general an easy and short process, except in cases of preter-

natural presentation, and that is an emergency for which the practical native accoucheuse of the country has no resource. I have heard of instances in which a presenting extremity has been rudely twisted off, for the purpose of facilitating delivery. After the child is born, the fire is kept up, and the room which in general has but one door, and no window, is filled by the relatives. During the first three days after the child is born, the woman has some spices to chew, with very little water, and no food is allowed. From their being thus kept in a heated, impure, and unchanged atmosphere, extreme constitutional irritability is a frequent consequence, and they often suffer from fever or tetanus; each of which, from the previous domestic management, as well as the medical treatment pursued during the disease, is almost invariably fatal. They consider all infirmities connected with, or occurring soon after child birth, as cold diseases*, and consequently cold,

* Many of the prescriptions used by the Baidis of this part of India, are considered precious and effectual, according to the number of ingredients they contain, and the numerous articles which are *supposed* to concur in producing one effect. The account of their *Súchika-bharana*, published by Mr. Wilson, may serve as an example of their complex formulæ in Cholera. The following prescription has been sent to me, as one in which great reliance is placed for the cure of *Sutheke*, or puerperal Dysentery.

চিত্তারমূল Plumbago Zeylanica—the root.

হরিতকী Terminalia Chebula—the fruit.

বহেড়া ——— Bellerica—ditto.

আমলা Phyllanthus Emblica—ditto.

free air, and cooling regimen are studiously avoided. Fresh air is excluded, the room is kept hot, and spices and aromatics are given : under this treat-

শঠ	Amomum Zingiber—the root.
পিপুল	Piper Longum—the fruit.
শরিচ	— Nigrum—ditto.
রক্তচন্দন	Pterocarpus Santalinus—the wood.
যৌয়ানী	Ligusticum Ajowan—the seeds.
হিঙ্গু	Ferula Asafœtida—the gum.
সচললবণ	Rock salt, from the vicinity of the Indus.
সৈন্ধবলবণ	Sodæ Muriat.
বিটেলবণ	Black salt.
পাঙ্গালবণ	Common impure Muriate of Soda.
কড়কচলবণ	Salt from evaporation of sea-water.
ফুল	Fuligo.
বচ	Zingiber Zedoaria—the root.
কুড়	Costus Speciosus—ditto.
মুখা	Cyperus Rotundus—ditto.
পার	Hydrarg. Purif.
গন্ধক	Sulphur. Sublimat.
অভু	Talc.
পোরা	Potassæ Nitrat.
নাটিকফার	—
শয়গারখই	Soda sub-boratis usti.
বনযৌয়ানী	Ligusticum Diffusum—the seeds.
গজপিপুল	Pothas Officinalis—ditto.
বিড়ঙ্গ	Birungo, a plant used as a vermifuge—the root.
হরিদ্রা	Curcuma Longa—ditto.
দারুহরিদ্রা	Xanthoxylon Alatum—ditto.

Forty-five grains of each of the above 30 articles are directed to be reduced to very fine powder. Some of the leaves of the narcotic *Siddy*, (*Cannabis sativa*,) are boiled in milk for a few minutes, and being dried in the sun, are reduced to a powder, eleven drachms and fifteen grains of which are mixed with the

ment the ordinary termination of those maladies is not surprising. I have been called to visit many of these cases at a late and hopeless stage ; and have seen stout, young, and plethoric women affected with puerperal fever, which appeared to me to be purely the result of extreme constitutional irritability, produced by artificial high temperature, impure air and stimulants ; unconnected with any distinct evidence of the existence of puerperal peritonitis, or of uterine phlebitis, but bearing the strongest marks of cerebral and spinal congestion and inflammation. I have been called to see such cases on the sixth day of the disease, after the ordinary stimulant mode of *taking out cold*, had been assisted by the administration of musk ; but no aperients had been given, and no evacuations from the bowels had been procured during that period. The termination of cases so treated, need not be named ; it is only surprising that irritative fever and tetanus are not more frequent.

Tetanus after child-birth is ascribed to the influence of evil spirits, and many of the lower orders

other articles. Forty-five grains of this compound powder are ordered for a full dose, which is to be taken in cold water, early in the morning. This is considered a very efficacious remedy for puerperal dysentery. It is however said by the natives to be inferior to the broth made of the *Tringa Goensis*, a small bird named in the Bengalee language (ডাক পাঁকি) *Dawk Pawkey* ; some of this broth is directed to be taken by the patient twice a day. It would not be reasonable to form a general opinion, from this prescription, and the '*Súchika-bharana*.'—Many of the native remedies are very powerful, and highly valuable.

would much sooner have recourse to charms than to any medical treatment.

The treatment of infants soon after their birth is very simple, and the high temperature of the lying-in room appears to be little or not at all injurious or uncomfortable to them, provided the warm atmosphere were pure; but from the closeness and unhealthy state of the air in the room, the child is sometimes destroyed by trismus. Native infants are sometimes fed with a small quantity of cow's milk, until the mother has a sufficient supply, which is in general very early, except in cases in which acute disease occurs. The system of invariably feeding all infants with Castor Oil, is not followed by the natives, and it is not uncommon to see persons of 20 years of age, who have never taken a dose of medicine.

The singular custom of exposing native children to the sun, is generally followed in this part of India. At the age of one month children are subjected to this process, which consists in applying daily a mixture of garlic and oil of mustard seed, to the crown of the head, and to the epigastrium and front of the chest: the child is then placed before the direct rays of the sun, every day during the second month, for an hour, at about eleven o'clock. This process is followed for the purpose of "strengthening the constitution, by drying up the superfluous water, or humidity, and diminishing the phlegm and coldness." The little inconvenience that appears to arise

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from this custom, is a proof of the original capability which these children inherit, of enduring exposure to the sun with impunity.

The immunity of native children from the various dangerous diseases to which European children are subject during dentition, must be ascribed to peculiarity of constitution. The dentition of Bengalee children is unattended by any dangerous affections of the head, or of the bowels; and they are never subject to convulsions from the irritation of teething. During the period at which native children change the teeth, from seven to nine years of age, they sometimes grow tall and thin, but they are then seldom sickly. At the age of 14 or 15, they are sometimes affected with marasmus, and as debility proceeds, I have frequently observed the chest to become deformed, the sternum protruded anteriorly, and the sides of the upper part of the chest flattened; at the same time that the lower and middle part of the left side of the chest, was enlarged to such degree that I have often examined these children carefully, for the purpose of ascertaining whether organic disease of the heart existed. These patients were in general free from symptoms of disease of the heart or lungs, though some of them have been troubled with cough at very late stages of the disease, and tubercles may have existed in those cases.

I am of opinion that the rarity of hysteria in the Asiatic female, may in great measure depend on peculiarities of constitution, and on the modified scale

of sympathies, which appears to protect the inhabitants of this country from many of the complaints to which Europeans are liable. How much of this exemption from disease may depend on the temperate modes of living generally observed by the natives, I need not explain.

Much more might be said on these subjects, but the foregoing remarks may satisfy us, that there are peculiarities of the Asiatic constitution, which are highly deserving of attention, with reference both to the preservation of their health, and the cure of their diseases.

END OF VOLUME SECOND.



